

## ORCHIDACEAE BURUENSES

by

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The *Orchidaceae* to be dealt with in the following pages are part of the plants which were collected by Mr. L. J. TOXOPEUS, leader of the zoobotanical section of the scientific expedition to Boeroe 1921-'22. A mantri, SAPRIN, was put at his disposal by 's Lands Plantentuin in Buitenzorg in order to assist him in collecting plants. Some of the plants enumerated have been imported as living specimens into the Gardens, and moreover I have added a few other species collected by Mr. E. STRESEMANN during the "II. Freiburger Molukken-Expedition" in 1912.

The whole number of species dealt with here amounts to 87. Amongst these there are 31 which are widely distributed in the Archipelago, partly also without. Special mention deserve *Cystorchis aphylla* RIDL. and *Dendrobium excavatum* MIQ. (var. *buruense* J. J. S.) which were not yet known eastward of Borneo, the former also from the Philippines, and *Bulbophyllum odoratum* LNDL. which was hitherto not recorded eastward of Selebes.

*Vandopsis lissochiloides* PFITZ. occurs also in Ambon, Selebes and the Philippines, *Eria littoralis* T. et B., *E. moluccana* SCHLTR. et J. J. S., *E. quadricolor* J. J. S. and *Trichoglottis geminata* J. J. S. in the Moluccas and Selebes, *Dendrobium lancifolium* A. RICH. and *Grammatophyllum scriptum* BL. in the Moluccas, Selebes and New Guinea (the latter probably also in the Philippines), *Dendrobium Mirbelianum* GAUD. and *Pomatocalpa marsupiale* J. J. S. in the Moluccas and New Guinea, *Sarcochilus Zollingeri* RCHB. F. in Ambon and Java, *S. Treubii* J. J. S. in the Aroe Islands, *Thrixspermum flaccidum* J. J. S. in Wetar. With Ambon Boeroe has in common *Paphiopedilum Mastersianum* PFITZ., *Coelogyne Rumphii* LNDL., *Calanthe tunensis* J. J. S., *Glomera amboinensis* J. J. S. (var. *buruensis* J. J. S.), *Dendrobium ephemereum* J. J. S., *D. purpureum* ROXB., *Vanda saxatilis* J. J. S. and *Saccolabium Rumphii* J. J. S., with Seran *Robiquetia viridirosea* J. J. S., whereas one species is as yet known only from New Guinea and Boeroe, viz. *Eria oligotricha* SCHLTR. The remaining 31 species are endemic. Of these only *Epiblastus buruensis* J. J. S., *Dendrobium confluens* J. J. S., *Bulbophyllum truncatisepalum* J. J. S. and *Phreatia Schoenorchis* J. J. S. belong to the really Papuan elements.

From what is as yet known about the Orchid-flora of Boeroe it is apparent, as might be expected, that it is closely connected with that of the other Moluccas and Selebes and is especially allied with that of Ambon.

PAPHIOPEDILUM PFITZ.

**Paphiopedilum Mastersianum** PFITZ. in ENGL. Bot. Jahrb. XIX (1894) 40; in Pflanzenr. IV. 50 (1903), 84; etc.

**Boeroe:** Between Leksoela and Mnges'waen wooded hill on the Ehoe, 1290 m, in humus on loamy withered lime (L. J. TOXOPEUS n. 152, 14 April 1921, in fruit). Way Leksoela to Fakal, 1150—1300 m, everywhere in mountain forest where loam (from sandstone) is covered by humus (L. J. TOXOPEUS n. 405, 27 August 1921; nat. name *Kasalo-wai*).

PERISTYLUS BL.

**Peristylus candidus** J. J. S. in Fl. Buit. VI, (1905), 36; Atlas f. XVIII; etc.

**Boeroe:** Near the marsh of Mnges'waen, c. 800 m, on a slope between *Imperata*, withered lime laterite (L. J. TOXOPEUS n. 122, 15 April 1921).

This is not *Habenaria lacertifera* BTH. with which RIDLEY unites it.

**Peristylus goodyeroides** LNDL. Gen. et sp. Orch. (1835), 299; etc.

**Boeroe:** Between Kaboet and Wai Ekèn, c. 300 m, lime (L. J. TOXOPEUS n. 59, 22 March 1921).

HABENARIA WLLD.

**Habenaria nalbesiensis** J. J. S. n. sp.

*Tubera* parvula, sicco c. 2 cm longa. *Caulis* erectus, basi radicans, c. 35 cm longus, magna parte vaginis tubulosis acutis tectus, parte superiore c. 13 cm longa foliatus. *Folia* c. 9, summo excepto patentissima, lanceolata, sensim longissime acuminata, longe mucronata, inferiora basi late petiolato-angustata, superiora sensim sessilia et basi lata amplexicaulia, costa media dorso carinata, nervo majore nonnullisque tenuibus utrinque, laxe reticulato-venosa, mediana ad c. 12.5 cm longa, 2.25 cm lata; vaginae tubulosae. *Inflorescentia* erecta, dense multiflora, pedunculo c. 7.5 cm longo, vaginulis foliaceis laxe adpressis sensim in bracteas vergentibus donato, rachide c. 9 cm longa. *Bracteae* adpressae, lanceolatae, sensim longe acutissime-acuminatae, concavae, 1nerviae, nervo dorso prominente, ad c. 2.5 cm longae, superiores decrescentes. *Flores* c. 18, quaquaversi, c. 3.3 cm longi. *Sepalum dorsale* erectum, valde concavum, oblongum, subexplanatum ellipticum, acuminatum, in appendicem filiformem productum, parte acuminata erosulum, 3nervium, totum c. 1.3 cm longum, 0.5 cm latum, appendice bene 0.2 cm longa. *Sepala lateralia* reflexa, ad faucem calcaris decurrentia, apice recurva, oblique ovata, acuminata, in appendicem filiformem producta, concava, parte acuminata canaliculata, 3nervia, costa media dorso prominente, tota c. 1.55 cm longa,

bene 0.5 cm lata, appendice 0.4 cm longa. *Petala* adscendentia, linearia, falcata, satis acuta, basi margine antico abrupte dilatata et lacinia angusta ad faucem calcaris decurrentia, dimidio superiore papilloso-ciliolata, 2nervia, nervo antico brevi, inexplanata c. 0.775 cm longa, supra basin 0.1 cm basi bene 0.3 cm lata. *Labellum* calcaratum, 3partitum, usque ad apicem ovarii c. 1.65 cm longum, laciniis lateralibus divergentibus, intermedia brevioribus angustioribusque, linearibus, c. 0.85 cm longis, 0.06 cm latis, lacinia intermedia apice incurvula, lineari, convexa, c. 1.2 cm longa, basi 0.14 cm lata; calcar deorsum spectans, cum ovario angulum acutum faciens, tenue, basi ampliatus et lateraliter compressum, c. 2.5 cm longum. *Gynostemium* erectum, cum ovario angulum obtusum faciens, c. 0.35 cm, cum brachiis stigmaticis c. 0.6 cm longum, auriculis versus basin, verruculosus, thecis clavatis papillosis, canalibus porrectis, brachiis stigmaticis decurvis canalibus longioribus. *Ovarium* 6sulcatum, crassius rostratum, pedicellatum, totum c. 1.8 cm longum, rostro 0.35 cm; pedicello 0.5 cm longo.

Boeroc: Na'besi, 810 m, under *Ficus* on sandy humus (L. J. TOXOPEUS n. 227, 17 June 1921; "flowers light greyish green, pollinia light yellow").

From the allied species with the petals not bipartite, such as *H. Backeri* J. J. S., *H. Koordersii* J. J. S., *H. damaiensis* J. J. S., etc., this is distinguished by its long thin spur.

Description from a single dried specimen.

#### APHYLLORCHIS BL.

##### *Aphyllorchis acuminata* J. J. S. n. sp.

*Rhizoma* verticale, ramosum, teres, longe pilosum. *Inflorescentia* erecta, laxe pauciflora, pedunculo tenui, adpresse furvo-furfuraco-puberulo, c. 19 cm longo, vaginulis c. 7 tubulosis superioribus laxioribus et in bracteas vergentibus donato, rachide angulata, indumento pedunculi, c. 35 cm longa. *Bracteae* ovato-triangularae, acutae, valde concavae, 3nerviae, c. 0.38 cm longae, 0.2 cm latae. *Flores* c. 4, patentes, c. 0.5 cm longi, sepalis petalisque conniventibus. *Sepalum dorsale* incurvum oblongo-ellipticum, apice leviter contractum, obtusum, valde concavum, 3nervium, costa media dorso prominula, bene 0.6 cm longum, 0.25 cm latum. *Sepala lateralialia* porrecta, oblique oblongo-elliptica, subacuta, vix apiculata, angulato-concava, 3nervia, nervo medio dorso prominulo, c. 0.525 cm longa, fere 0.2 cm lata. *Petala* porrecta, oblique subovato-oblonga, falcata, obtusa, breviter conico-apiculata, basi oblique rotundata vix unguiculata, 3nervia, costa media dorso incrassata et in praefloratione inter sepala prominente, c. 0.53 cm longa, 0.25 cm lata. *Labellum* porrectum, 3nervium, nervis exterioribus supra basin furcatis, totum c. 0.4 cm longum, ungue (hypochylio) cum ovario angulum obtusum, cum gynostemio angulum acutum faciente, lato, concavo, utrinque lobulo erecto late triangulo in laciniam reversam linearem obtusam acuminato concavo donato, c. 0.16 cm longo, lamina porrecta facie inferiore sigmoidea, 3loba,

concava, extus prominenter nervosa, parte mediana incrassata, subtus versus apicem carinata, c. 0.24 cm cum lobis lateralibus c. 0.34 cm longa, lobis lateralibus erectis, reversis, parallelogrammiformibus, obtusis antice, obtusangulis, sensim in lobum intermedium abientibus, lobo intermedio porrecto, excavato-concavo, apice calloso-incrassato lateraliter compresso obtuso inconspicue recurvulo. *Gynostemium* erectum, leviter incurvulum, clavatum, sulcis longitudinalibus costulatum, praesertim costula dorsali conspicua, parte inferiore subteres, c. 0.275 cm longum, clinandrio transverso, alte excavato, sinu satis angusto in lobos 2 conspicuos triangulos concavos partito. *Anthera* cucullata, magnam partem in clinandrium immersa, dorso tantum prominens, tectiformis, ambitu transverse elliptica, connectivo longitudinaliter incrassato, c. 0.13 cm lata. *Stigma* transversum, semilunatum. *Ovarium* pedicellatum 6sulcatum, basi apiceque leviter contractum, vix verruculosum, c. 0.85 cm longum.

Boerøe: Mountain ridge behind Wai Eno, 950 m (L. J. TOXOPEUS without number, 25 April 1921: „flowers brownish light yellow, with brown streaks”).

One of the nearer allies of *A. pallida* BL. but with the lobes of the hypochyl much acuminate, the lamina indistinctly threelobed and the side-lobes reverse. Also the colour is unusual in the genus.

Description from a single probably weak specimen preserved in alcohol.

***Aphyllorchis angustipetala* J. J. S. n. sp.**

*Rhizoma* verticale vel horizontale, simplex, brevinode, pars adest c. 4—5 cm longa, radicibus patentissimis crassis. *Caulis* hypogaeus, brevinodis, c. 4.5 cm longus, vaginatus. *Inflorescentia* elata, laxa multiflora, pedunculo c. 55 cm longo, longinodi, vaginulis c. 8 tubulosis superne laxioribus ad c. 2—3 cm longis donato, rachide c. 21—23 cm longa. *Bractee* reflexae, lanceolatae, apicem versus angustatae, anguste obtusae, concavae, dorso minute verruculosae, utrinque sed praesertim intus pilis clavatis minutis muriciformibus vestitae, 3nerviae, ad c. 1.7—1.9 cm longae, superiores decrescentes. *Flores* patentes, c. 1.45 cm longi, sepalis petalisque conniventibus, divergentibus, dorso sparse furfuraceo-punctatis, petalis praesertim in costa media. *Sepalum dorsale* incurvulum, apice recurvulum, cymbiformi-concavum, lanceolatum, apice leviter contractum minuteque crenulatum, brevissime apiculatum margine inferne recurvulum, dorso praesertim costa media apiceque verrucosum, 3nervium, nervis dorso ad basin prominentibus, c. 1.5 cm longum, fere 0.5 cm latum. *Sepala lateralia* canaliculata lateribus convexis, oblique lanceolata, obtusa, breviter apiculata, apice minute crenulata, dorso ut in sepalo dorsali verrucosa, 3nervia, costa media dorso obtuse incrassata, nervis exterioribus basi tantum prominentibus, c. 1.4 cm longa, 0.44 cm lata. *Petala* porrecta, apice recurva, oblique linearia, vix falcata, apice plus minusve contracta undulataque, acuta, convexa cum marginibus valde recurvis, basi apiceque concava, irregulariter marginata minuteque crenulato-erosula, 1nervia, costa media dorso conspicue costato-incrassata

inter sepala prominente, c. 1.4 cm longa; fere 0.3 cm. lata. *Labellum* cum ovario angulum obtusum cum gynostemio angulum acutum faciens, gynostemium superans, 3nervium, totum c. 1.125 cm longum, ungue (hypochylio) concavo lobulos 2 erectos parallelos triangulos satis acutos gerente, c. 0.27 cm longo, lamina porrecta, elastice inserta, 3loba, concava, marginibus loborum lateralium exceptis spongioso-carnosa, incrassatione supra basin laminae abrupte bilobato-terminante, intus transverse verruculoso-rugosa, inexplanata c. 0.9 cm, usque ad apicem loborum lateralium 0.375 cm longa, ad lobos laterales fere 0.3 cm lata, explanata ambitu ovato-triangulari, c. 0.9 cm longa, bene 0.5 cm lata, lobis lateralibus erectis postice rotundatis apice triangulis cum plica abrupte introrsa ab apicem decurrente, lobo intermedio porrecto concavo subtus convexo ovato-triangulo apice conico recurvuloque acuto extus minute verruculoso c. 0.6 cm longo 0.36 cm lato. *Gynostemium* cum ovario angulum obtusum faciens, sensim clavatum, in  $\frac{2}{5}$  partibus supra basin (absque anthera) obtusangule arcuatum, dorso ad apicem gibbosum, apice in utraque antherae parte auricula recurvula triangula anguste obtusa instructum, cum anthera c. 0.975 cm longum, clinandrio brevissimo. *Anthera* magna, cucullata, basi valde contracta incurvaque, valde lateraliter compressa, apicem versus altior, a latere visa oblique obovata, rotundata, cum rostro parvo tenui, connectivo crasse costiformi, c. 0.325 cm longa. *Rostellum* conspicuum, fere ad apicem gynostemii, cum eo angulum rectum faciens, triangulum. *Stigma* obovato-triangulum. *Ovarium* elongatum, obtuse trigonum 6sulcatum, 6costatum, minute verruculosum, pilis clavatis minutis muriciformibus inspersum, c. 1.7 cm longum; pedicellus ovario similis, tortus, c. 0.6 cm longus.

Boeroe: Between Leksoela and Mnges'Waen, c. 1200 m, humus (L. J. TOXOPEUS n. 136, 13 April 1921; "segments of flower streaked violet outside, honey mark violet lighter in the centre, yellow tip to the column, light violet foot, ovary and stem densely striped violet, bracts lighter with a violet margin"). In the eastern part, behind Loemara, c. 200 m, in forest, humus (L. J. TOXOPEUS n. 527, 17 November 1921; "stem and ovary yellowish white, more or less striped violet, perianth with a dorsal streak, base of column violet, tip and pollinia light yellow, base of lip with an orange central blotch, erect margins light violet, notches brownish yellow, remaining parts yellowish white").

Allied to *A. arfakensis* J. J. S. from New Guinea but with much narrower petals, different side lobes and anther. To the same affinity belong probably *A. Prainii* HOOK. F. and *A. striata* RIDL.

Description from herbarium and materials preserved in alcohol.

#### EPIPOGUM GMEL.

*Epipogum roseum* LNDL. in Journ. Linn. Soc. I (1857), 177; AMES Orch. II (1908), 48; etc.

Boeroe: Wakollo, on the Rana, 800 m (L. J. TOXOPEUS, without number; „all parts white, lip dotted light purple”).

## SPIRANTHES L. C. RICH.

*Spiranthes sinensis* AMES Orch. II (1908), 53; etc.

Boeroe: Fakal, 1100 m, between grass on the road side (L. J. TOXOPEUS without number).

## VRYDAGZYNEA BL.

*Vrydagzynea buruensis* J. J. S. n. sp.

*Caulis* e basi decumbente radicante ascendens, ramosus, c. 10—14 cm longus. *Folia* ad c. 7—10, oblique ovata, acuta vel leviter acuminata, apiculata, basi oblique obtusa, breviter in petiolum contracta, nervis 3 majoribus nonnullisque tenuibus, costa media dorso prominente, c. 1.6—2.8 cm longa, 0.85—1.5 cm lata; petiolus canaliculatus, cum vagina brevi tubulosa c. 0.8—1.1 cm longus. *Inflorescentia* erecta, dense pauciflora, pedunculo superne pubescenti, c. 1.1—1.6 cm longo, vaginulis 1—2 in bracteas vergentibus donato, rachide pubescenti, c. 0.7—1.3 cm longa. *Bractee* oblongo-triangularae, acutae, basi utrinque rotundato-dilatatae, 1nerviae, glabrae, c. 0.7 cm longae, supra basin bene 0.3 cm latae. *Flores* c. 3—7, quaquaversi, bene 1 cm longi, sepalis conniventibus. *Sepalum dorsale* subovato-lanceolatum, acuminato-contractum, triangulo-acutatum, acutum, concavum, 1nervium, c. 0.575 cm longum, 0.175 cm latum. *Sepala lateralía* oblique lanceolata, falcata, apicem versus angustata, apiculata, basi oblique calcari adpressa, concava, 1nervia, c. 0.65 cm longa, 0.2 cm vel bene 0.2 cm lata. *Petala* sepalo dorsali agglutinata, oblique lanceolata,  $\frac{1}{3}$  superiore contracta, obtusa, vix inaequilatera, concava, 1nervia, c. 0.5 cm longa, 0.14 cm lata. *Labellum* subovato-triangulum, acutatum, satis acutum, basi utrinque rotundatum, marginibus in c.  $\frac{1}{3}$  supra basin anguste incurvis infra apicem contiguis, c. 0.47 cm longum, 0.3 cm latum; calcar ovario adpressum, oblongum, obtusum, c. 0.53 cm longum, intus glandulis 2 stipitatis subovalibus cum stipite c. 0.15 cm longis in c. 0.2 cm supra basin solutis 0.125 cm infra apicem attingentibus donatum. *Gynostemium* breve, c. 0.2 cm longum, clinandrio alte excavato, angulis anticis obtuse rectangulo. *Rostellum* (pars adest) quadrangulum, stigmata vix superans, apice deficiente. *Stigmata* triangula, obtusa. *Ovarium* tortum, glabrum, c. 0.8 cm longum.

Boeroe: Way from Leksoela to Fakal, c. 1200 m, very humid calcareous sediment of brook (L. J. TOXOPEUS n. 411, coll. SAPRIN, 27 August 1921; "flowers green with white tips and spur").

Resembling in habit *V. uncinata* BL. but with more acute lateral sepals and a triangular acute lipblade.

The description, planned after a few dried specimens, wants emendation after better material.

## ZEUXINE LNDL.

*Zeuxine triangula* J. J. S. n. sp.

*Caulis* e basi decumbente radicante erectus, c. 12 cm longus parte erecta c. 5.5 cm longa. *Folia* c. 6, oblique oblongo-ovata, leviter falcata,

acuta vel brevissime acuminata, apiculata, basi oblique subrotundata abrupte in petiolum contracta, in utraque parte costae mediae supra sulcatae subtus carinatae nervo 1 majore nonnullisque minoribus, c. 2.35—3.3 cm longa, 1—1.3 cm lata; petiolus canaliculatus, cum vagina tubulosa c. 0.8—1.1 cm longus. *Inflorescentia* erecta, laxe pluriflora, pedunculo pubescenti, c. 7 cm longo, medio fere vaginula donato, rachide pubescenti, c. 3.1 cm longa. *Bractee* e basi late ovato-triangula longe anguste acuminatae, acutae, concavae, dorso pubescentes, 3nerviae, nervis exterioribus brevibus, c. 0.6 cm longae, 0.3 cm latae. *Flores* c. 10, quaquaversi, patentes, sepalis dorso patentissime pubescentibus. *Sepalum dorsale* ovatum, acuminatum, obtusum, obtuse apiculatum, basi latum, concavum, 3nervium, c. 0.6 cm longum, 0.33 cm latum. *Sepala lateralialia* oblique oblongo-ovata, obtusa, concava, 3nervia, nervis exterioribus tenuibus, c. 0.57 cm longa 0.28 cm lata. *Petala* sepalo dorsali agglutinata, valde inaequilatera, e basi brevissime unilatera-liter contracta bene subsemiorbiculari-dilatata,  $\frac{2}{3}$  partibus superioribus oblongo-contracta, apice breviter triangulo-angustata, anguste obtusa, recurvula et dorso incrassatula, falcata, subsigmoidea, concava, 2nervia, nervo exteriori inconspicuo, c. 0.575 cm longa, parte lata c. 0.34 cm longa, 0.225 cm lata, parte angustata c. 0.24 cm longa, bene 0.1 cm lata. *Labellum* basi saccatum, c. 0.46 cm longum, sacco subgloboso, marginibus incurvis basi gynostemio adpresso, subtus longitudinaliter canaliculato, intus costato, utroque latere lamellis 2 approximatis vel basi connexis erectis longitudinalibus apice paucilobulatis instructo, c. 0.2 cm longo, 0.24 cm lato, in unguem brevissimum cuneatum marginibus incurvis contiguisque subtubulosum a dorso compressum utrinque subalato-dilatato transverseque undulato fere 0.1 cm longo contracto, ungue abrupte in laminam brevem latissime obtusissime triangulam postice subtruncatam longitudinaliter canaliculatam et in utraque canaliculae parte costula convexa instructam c. 0.175 cm longam 0.58 cm latam dilatato, lateribus divaricatis oblique triangulis subfalcatulo-recurvis obtusis. *Gynostemium* brevissimum, supra visum ambitu ovatum, dorso convexum, subtus lamellis 2 brevibus oblique transverse recurvis rotundatis subtus concavis donatum, c. 0.225 cm longum, clinandrio alte excavato, tenui apice truncato. *Anthera* cucullata, alte in clinandrium immersa, profunde cordata, abrupte triangulo-acuminata, inexplanata acuta, c. 0.2 cm longa. *Pollinia* 2 oblique obovoidea, curvula, seclilia, stipite conspicuo lato ambitu rhombico convexo subtus concavo, parte inferiore obovato-orbiculari antice truncata supra margine conspicue incrassata ultra basin polliniorum more Thrixspermi in appendicem liberam subovatam obtusam subtus marginibus incurvis valde concavam polliniis paulo brevioribus producta; glandula stipitis partem latam subtus investiente, tota c. 0.17 cm longa. *Rostellum* conspicuum, porrectum, alte bipartitum, laciniis irregulariter oblique oblongis, superne introrsim concavis, obtusis, subtus ad basin utrinque excavatione (stigmati) subtriangula leviter concava donatis. *Ovarium* sessile, tortum, 6sulcatum, pubescens, c. 0.55 cm longum. *Capsula* fusiformis, pubescens, reliquiis floris

coronata, c. 0.85 cm longa, in valvas 3 anguste lineares et 3 latiores basi apiceque connatas dehiscens.

Boeroe: Ehoe, 1200 m, on limestone (L. J. TOXOPEUS n. 341, coll. SAPRIN 28 September 1921; "flowers red").

A very distinct species, which in the shape of the column suggests a *Ceratostylis* and in that of the pollinarium a *Thrixspermum*.

Description from a single dried specimen.

#### HETAERIA BL.

**Hetaeria oblongifolia** BL. Bijdr. (1825), 410; Tab f. 14; etc.

Boeroe: Ehoe, 1000 m, on limestone (L. J. TOXOPEUS n. 318, coll. SAPRIN 24 September 1924).

#### TUBILABIUM J. J. S. nov. gen.

*Sepala* libera, apice recurva, lateralibus basi labelli saccum amplectentia. *Petala* lata, apice contracto papillosoque recurva. *Labellum* angustum, basi breviter saccata intus biglandulosa basi sepalorum lateralium inclusum, marginibus ante gynostemium incurvis contiguisque tubum longum recurvulum utrinque longitudinaliter anguste costulatum vel appendiculatum papillosum minute incurvo-apiculatum formans. *Gynostemium* breve, apice recurvum, subtus longitudinaliter bilamellatum. *Anthera* haud in clinandrium immersa, longe rostrata, apice incurva. *Polliniorum* glandula parvula. *Stigmata* 2, obtusa. *Plantae* parvae, terrestres, caule e basi decumbente radicante adscendente. *Folia* parva, ovata, colorata. *Inflorescentia* erecta, densius pauci-pluriflora, pubescens.

This genus is based on two species, one of which was collected in Boeroe and is described here, whereas the other, from southern Selebes, will be described afterwards.

Amongst the genera of the *Physurinae* with two distinct stigmata it much resembles in habit *Myrmecis* BL. and *Odontochilus* BL. However, the lip is not dilated into a blade, and the part which constitutes the claw of the lip in the said genera is recurved, densely papillose and provided at the apex with a very short incurved apiculus. The column is much recurved above the base, and the clinandrium being rather shallow does not permit the anther to be immersed in it.

#### **Tubilabium aureum** J. J. S. n. sp.

Pusilla. *Caulis* e basi decumbente radicante adscendens, c. 9 cm longus, post florescentiam ramum emittens. *Innovationes* basi nonnullis vaginis donatae, paucifoliae. *Folia* c. 3, oblongo-ovata, acutata, brevissime acute acuminata, basi breviter in petiolum contracta, undulata, sicco ad c. 2 cm longa, 0.77 cm lata; petiolus canaliculatus, cum vagina tubulosa c. 0.95 cm longus. *Inflorescentia* erecta, brevis, pauciflora, pedunculo albo-pubescenti, c. 1.2 cm



longo, vaginulis 2 conspicuis basi infundibuliformi-tubulosis pubescentibus sensim longe acute acuminatis 1nerviis c. 0.8 cm longis donato, rachide pubescenti, c. 0.4 cm longa. *Bracteae* adpressae, ovato-triangularae, sensim acutatae, acutae, concavae, dorso apice excepto pubescentes ciliataeque, 1nerviae, c. 0.8 cm longae, 0.3 cm latae. *Flores* c. 5, bene 0.6 cm longi. *Sepalum dorsale* erectum, apice recurvum, e basi ovali ovali-oblongo-contractum, obtusum, concavum, dorso praesertim ad basin longius reverse pilosum, 1nervium, c. 0.575 cm longum, 0.26 cm latum, apice contracto fere 0.2 cm longo. *Sepala lateral*ia divergentia, apice recurva, oblique ovato-oblonga, obtusa, praesertim inferne concava, dorso praesertim versus basin pilosa, 1nervia, c. 0.57 cm longa, 0.26 cm lata. *Petala* sepalo dorsali non agglutinata, apice recurva, margine postico valde incurva, inaequilatera, praesertim margine antico basi rotundato-dilatata, oblique subovata, c.  $\frac{1}{3}$  superiore oblique oblongo-contracta, obtusa, parte contracta papillosa, 1nervia, c. 0.5 cm longa, 0.25—0.26 cm lata. *Labellum* gynostemio parallelum, basi breviter saccatum, angustum, c. 0.47 cm longum, sacco concavo, marginibus gynostemio adpresso, subtus ad basin canaliculato intus costato et utrinque glandula longitudinali oblonga donato, glabro, c. 0.175 cm longo, fere 0.2 cm lato, marginibus ante saccum incurvis contiguisque tubulum elongatum angustum apice vix dilatatum recurvulum apice ultimo incurvulum haud in laminam dilatatum obtusum utroque latere anguste longitudinaliter costatum papillosum formantibus. *Gynostemium* basi satis tenue, paulum infra medium valde recurvum, apice incurvum, subtus lamellis 2 longitudinalibus postice connatis donatum, c. 0.26 cm longum, clinandrio concavo. *Anthera* cucullata, cordata, apice sensim longe rostrata incurvaque, c. 0.23 cm longa. *Rostellum* porrectum, apice recurvum, canaliculatum, anthera brevius. *Stigmata* 2, in utroque latere porrecta, divergentia, verticalia, oblique quadrangula, truncata. *Ovarium* praesertim superne pilosum, c. 0.7 cm longum.

Boeroe: Fat'Koton (Fakal), 1475 m, on lime (L. J. TOXOPEUS n. Bi, 11 March 1922; "leaves with gold-glittering nerves, flowers pure white").

In the macerated flower the petals are free, papillose at the recurved tip. The lip is for the greater part narrowly tubular; in the soaked flower the two glandulae in the saccate base of it are brown in the lower part whereas the anterior part is whitish. Also the column is very characteristic.

Description from a single dried specimen.

#### CYSTORCHIS BL.

*Cystorchis aphylla* RIDL. in Journ. Linn. Soc. Bot. XXXII (1894), 400; etc.

Boeroe: Way from Mnges'Waen to Leksoela (Ehoe), c. 1100 m, forest on sandy soil (L. J. TOXOPEUS n. 149, 14 April 1921).

A peloric form. The discovery of this species in Boeroe is rather interesting.

I suppose that *Aphyllorchis vaginata* HOOK. F. belongs here.

## GOODYERA R. BR.

**Goodyera rubicunda** LNDL. in Bot. Reg. XXV (1839), 92, Misc. 61; etc.  
Boeroe: Ehoe, 1000 m, on limestone (L. J. TOXOPEUS n. 298, coll. SAPRIN, 21 April 1921).

## CORYMBORCHIS THOU.

**Corymborchis parviflora** J. J. S. n. sp.

*Caulis* erectus, leviter serpentinus, teres, 60 cm superans. *Folia* oblongo-elliptica, acuminata, acuta, apiculata, basi acuta petiolato-contracta, glabra, nervis 7 subtus prominentibus, sicco papyracea, ad c. 25 cm longa, 6.8 cm lata, petiolo canaliculato, sensim in vaginam canaliculatam basi tubulosam abiens. *Inflorescentiae* axillares, plano-compresse paniculatae, pedunculo caulo adpresso vaginis incluso, compresso, c. 4 cm longo, panicula c. 6—6.5 cm longa, ramis absque racemo terminali c. 3, laxe multifloris, ad c. 4 cm longis. *Bractae* patentissimae ad patentes, lanceolato-triangulae, acutae, concavae, ad c. 0.75 cm longae, superiores minores, late triangulae, basi lata rachidi cucullato-adnatae, concavae, costa media dorso incrassata, c. 0.3 cm longae. *Flores* parvuli. *Sepalum dorsale* erectum, lineare, vix spathulatum, supra basin vix dilatatum, obtusum, margine apicali cucullato-incurvo, apiculatum, canaliculatum, 3nervium, costa media dorso prominente, c. 1.55 cm longum, inferne fere 0.2 cm superne 0.27 cm latum. *Sepala lateralialia* revoluta, oblique lineari-spathulata, superne falcatulo, apice conduplicata, acuta, basi paululum dilatata, 3nervia, costa media dorso prominente, c. 1.275 cm longa, ungue c. 0.175 cm basi 0.2 cm, lamina 0.24 cm lata. *Petala* revoluta, oblique spathulata, canaliculata, 3nervia, costa media dorso crasse prominente, c. 1.5 cm longa, ungue lineari basi valde obliquo, c. 0.9 cm longo, bene 0.1 cm lato, basi obliqua c. 0.25 cm longo, lamina oblique oblongo-elliptica, obtusa, crispula, bene 0.6 cm longa, fere 0.3 cm lata. *Labellum* erectum, spathulatum, 3nervium, costa media dorso conspicue incrassata, explanatum fere 1.5 cm longum, ungue valde canaliculato, marginibus incurvis gynostemium amplectente, oblongo, apice constricto, intus costis 2 longitudinalibus in medio unguis latissimis supra basin evanescentibus apice in basi laminae divergentibus terminantibusque donato, explanato bene 1 cm longo, 0.38 cm apice fere 0.2 cm lato, lamina sub-orbiculari valde crispata, c. 0.45 cm longa, 0.54 cm lata. *Gynostemium* elongatum, clavatum, tenue, c. 1.4 cm longum, clinandrio conspicuo, oblongo-quadrangulo-concavo, margine antice utrinque in dentem triangulum incurvum producto. *Anthera* cucullata, rostellum aequans, oblongo-ovata, acuminata, apice recurvo satis acuta, basi rotundata, marginibus tenuibus, c. 0.3 cm longa. *Pollinia* 2, longa, clavata, curvula, basi acuta, longitudinaliter sulcata, c. 0.25 cm longa, cum stipite tenuissimo c. 0.075 cm longa et glandula majuscula ovali c. 0.1 cm longa 0.37 cm metientia. *Rostellum* erectum, e basi valde dilatata acuminatum, bipartitum, laciniis parallelis, anguste triangularibus, anguste obtusis. *Stigma* dilatatum, fere 0.2 cm latum, margine inferiore

in lobulos 2 brevissimos triangulos obtusos reflexos productum. *Ovarium* 6sulcatum, c. 0.7 cm longum.

Boeroe: Mountainous country north of Leksoela, 600—1000 m, on limestone with little humus (L. J. TOXOPEUS n. 285, leg. SAPRIN 13 October 1921; "flowers white"). Ehoë, 1000 m, limestone (L. J. TOXOPEUS n. 338, coll. SAPRIN 28 September 1921, without flowers; "plant 8.5 cm high, flowers white").

This is distinguished from the small-flowered Papuan species by the broad leaves, from *C. minor* SCHLTR. moreover by the longer column.

Description from herbarium.

#### COELOGYNE LNDL.

**Coelogyne Rumphii** LNDL. Fol. Orch. (1854), 35; etc.

Boeroe: Nal'Besi, 800 m (L. J. TOXOPEUS n. 250, coll. SAPRIN 3 July 1921). Fakal, 1100 m (L. J. TOXOPEUS n. 453, brought by a native; 29 August 1921).

**Coelogyne undatialata** J. J. S. n. sp.

*Pseudobulbi* approximati, elongati, sicco c. 5.2 cm longi, 2folii, initio nonnullis vaginis imbricantibus superne accrescentibus acuminatis acutis ad c. 4.5 cm longis ad basin. *Folia* lanceolata, basin apicemque versus sensim angustata, acuta, nervis 5 majoribus, firmiter papyracea, c. 21 cm longa, 2.3—2.5 cm lata; petiolus canaliculatus, c. 2—2.2 cm longus. *Inflorescentia* foliis valde juvenilibus synantha, laxe pauciflora, pedunculo nudo, c. 4.5 cm longo, rachide flexuosa, tereti, sparse minutissime puncticulata, c. 9 cm longa, internodiis ad c. 2.1 cm longis. *Bractee* caducae, pedicellum amplectentes, conduplicatae, ovatae, acutatae, valde carinatae, utrinque puncticulatae, c. 2.6 cm longae, 1.15 cm latae. *Flores* c. 6, c. 2 cm lati, sepalis divergentibus, utrinque minute furfuraceo-puncticulatis. *Sepalum dorsale* subhorizontale, e basi erecta incurvulum obtusangule concavum, lateribus superne convexis, oblongum, obtusum, minute apiculatum, dorso carinatum, c. 9nervium, c. 2.4 cm longum, 0.95 cm latum. *Sepala lateralia* divergentia, angulum acutum facientia, basi obtusangule concava, lateribus superne in utraque canaliculae parte convexis, oblique oblonga, subfalcata, obtusa, vix apiculata, dorso valde alato-carinata, c. 7nervia, c. 2 cm longa, 0.675 cm lata. *Petala* revoluta, linearia, subfalcata, obtusa, convexa, 3nervia, c. 2 cm longa, 0.175 cm lata. *Labellum* porrectum, gynostemium bene superans, in c.  $\frac{2}{5}$  partibus supra basin leviter obtusangule recurvulum, 3lobum, concavum, subtus longitudinaliter sulcatum, intus 3costatum, costis aliformibus subirregulariter marginatis, costa intermedia infra medium lobi intermedii evanescente, costis exterioribus in lobo medio paululum divergentibus sensim leviter incrassatis dorso appianatis et irregulariter rugulosis in  $\frac{3}{5}$ — $\frac{2}{3}$  partibus supra basin lobi intermedii abrupte terminantibus, costula brevi

humili utrinque ad basin, inexplanatum c. 1.65 cm longum, explanatum bene 1.7 cm, usque ad apicem loborum lateralium 1.1 cm longum, ad lobos laterales 1.3 cm latum; lobi laterales erecti, gynostemium superantes, oblongi, parte libera porrecta, subtrapeziformi vel subtriangula obtuse vel acute acutata, minute irregulariter marginata, c. 0.46 cm longa, lobus intermedius porrectus, concavus, suborbicularis, lobulo minuto apiculatus, subundulatus erosulusque, c. 1 cm longus, fere 1.1 cm latus. *Gynostemium* gracile, curvulum, clavatum, superne anguste alatum et subtus concavum, ala apicali 3lobata, lobo intermedio longiore obtusangule recurvulo 6angulato erosulo, lobulis lateralibus brevioribus recurvulis intus convexis obtusis erosulis, dorso convexum superne nonnullis papillis inspersum, c. 1.2 cm longum, clinandrium concavo. *Anthera* cucullata, antice visa galeiformis, apice tenui leviter acute triangulo-producta erosulaque, connectivo costato dorso gibboso, c. 0.22 cm lata. *Pollinia* 4, oblique oblongo-pyriformia, subfalcata, extus convexa, intus excavatione longitudinali lineari instructa. *Rostellum* recurvum, semiorbiculare, convexum cum costula longitudinali. *Stigma* semiorbiculare, margine inferiore elevato recurvo tenui denticulato. *Ovarium* obconicum, valde sexalatum alis alternatim valde et leviter undulatis, praesertim inter alas minute furfuraceo-puncticulatum, c. 0.5 cm longum; pedicellus sexangulatus, parce puncticulatus, c. 1.4 cm longus.

Boerœ: (L. J. TOXOPEUS, liv. pl. cult. in Hort. Bog. sub n. 155, fl. October. 1924).

This species is nearly allied to *C. chlorophaea* SCHLTR. from Selebes but differs, according to the description and sketch, in the narrower leaves, ovate acuminate bracts, elliptic dorsal sepal, the inflorescence being much shorter than the leaves, the much broader lip with the free portion of the side-lobes a good deal longer and not rounded, the midlobe relatively much larger, the clinandrium distinctly 3lobulate and erosule and the anther not emarginate but acute. The keels were not described by SCHLECHTER.

"Bracts yellowish green, light brown along the keel, sepals and petals greenish yellow, lip orange at the base, midlobe dark brown, side lobes streaked lighter brown". (J. G. B. BEUMÉE)

Description from herbarium and an inflorescence preserved in alcohol.

#### PHOLIDOTA LNDL.

**Pholidota imbricata** LNDL. in HOOK. Exot. Fl. II (1825), t. 138; etc.

Boerœ: Mnges'Waen 800 m (L. J. TOXOPEUS n. 62, coll. SAPRIN 23 March 1921).

The form collected agrees with what I enumerated under the name *Ph. imbricata* LNDL. var. *papuana* J. J. S. (in Bull. Jard. Bot. Buit. 3<sup>e</sup> sér. I (1919), 95). It is a more robust plant than the common Malayan form, and possesses a long erect peduncle and a drooping spike. It is very common

in Dutch New Guinea, but has also been collected on the Kai Islands, Ambon and Java (Semarang).

## DENDROCHILUM BL.

*Dendrochilum longifolium* RCHB. F. in Bonpl. IV (1856), 329; etc.

var. *buruense* J. J. S. n. var.

*Rhizoma* repens, breve, teres, vaginis mox in fibras solutis. *Pseudobulbi* approximati, sicco c. 4.25 cm longi, vaginis ad c. 6.5 cm longis ad basin. *Folium* lanceolatum, breviter acutum, basi sensim acuta in petiolum angustatum, in utraque parte costae mediae subtus obtuse prominentis nervis 2—3 majoribus sicco supra pallidis pluribusque tenuibus, sicco tenuiter coriaceum, c. 14.5 cm longum, 2.3 cm latum; petiolus canaliculatus, c. 4.25 cm longus. *Inflorescentia* folio synantha, laxe multiflora, pedunculo tenui, c. 15.5 cm longo, rachide arcuata, angulata, c. 11 cm longa, internodiis c. 0.5—0.6 cm longis. *Bractee* c. 2 inferiores steriles, adpressae, ceterae orbiculari-ovatae, brevissime acuminatae, c. 13nerviae, c. 0.8 cm longae, 0.57 cm latae. *Flores* mediocres. *Sepalum dorsale* oblongo-ellipticum, brevissime acute acuminato-conduplicatum, 3nervium, c. 0.85 cm longum, 0.3 cm latum. *Sepala* lateralia oblique oblongo-ovato-elliptica, apicem versus angustata, acuta, canaliculato-concava cum lateribus convexis, 3nervia, dorso ad apicem carinata, c. 0.85 cm longa, 0.32 cm lata. *Petala* oblique lanceolata, satis acuta, basin versus sensim angustata vel plus minusve unguiculato-contracta, 3nervia, c. 0.775 cm longa, 0.24 cm lata. *Labellum* porrectum, apice recurvum, 3lobum, costis 2 longitudinalibus in hypochylio basin labelli non attingentibus, 3nervium, explanatum medio constrictum, panduratum, c. 0.77 cm, usque ad apicem loborum lateralium 0.425 cm longum, hypochylio e basi breviter unguiculata suborbiculari, c. 0.275 cm ad apices loborum lateralium 0.375 cm lato; lobi laterales in medio labelli, parvi, subulati, falcato-recurvi, acuti, lobus intermedius hypochylio subsimilis, late ovatus, obtusus, c. 0.35 cm longus, 0.3 cm latus. *Gynostemium* arcuatum, superne alatum, c. 0.6 cm, usque ad apicem alarum lateralium 0.45 cm longum, alis lateralibus ala apicali multo brevioribus, e medio gynostemii, patentibus, in curvis subtortis, oblique oblongis acutis, ala apicali apice recurvula, truncata, denticulata. *Anthera* sub ala abscondita, cucullata, transversa, subreniformis, breviter acute acuminata, connectivo gibboso, c. 0.13 cm lata. *Rostellum* recurvum, triangulum. *Stigma* semiorbiculare, margine elevato.

Boeroe: In the north-western part, Goenoeng Togha, 1900 m (E. STRESEMANN n. 337. February 1912; "flowers yellowish").

I have registered this as a variety of *D. longifolium* RCHB. F. with which it agrees in most respects. However, the lip looks rather different the midlobe being relatively much smaller and of a different shape. When better materials shall be available it will perhaps prove necessary to give it specific rank.

Description from a small dried specimen.

SPATHOGLOTTIS BL.

**Spathoglottis plicata** Bl. Bijdr. (1825), 401; Tab. f 76; etc.

Boeroe: Between Wae Ekin and Wae Katin, between *Imperata* on calcareous ground (L. J. TOXOPEUS n. 63, coll. SAPRIN 23 March 1921; "flowers purple or white, the latter colour especially on some hills near Wae Katin; ind. name „Was'tafa").

CALANTHE R. BR.

**Calanthe tunensis** J. J. S. in Bull. Inst. Bot. Buit. N. VIII (1900). 3; in Ic. Bog. II (1903), 69, t. CXIII A; etc.

Boeroe: Nal'Besi, 1100 m, on humus in forest on sandstone (L. J. TOXOPEUS n. 202, coll. SAPRIN 13 June 1921; "colour of flowers between dark cadmium-yellow and orange"). Way from Leksoela to Fakal, 1100-1300 m, humus in forest on loam, locally common (L. J. TOXOPEUS n. 406, 27 August 1921; "flowers yolk-yellow").

**Calanthe veratrifolia** R. BR. in Bot. Reg. IX (1823), t. 270; etc.

Boeroe: Fakal, 1150 m, shady lime (L. J. TOXOPEUS nrs 434 and 452, August 1921).

EULOPHIA R. BR.

**Eulophia Zollingeri** J. J. S. in Fl. Buit. VI, Orch. (1905), 228; in Bull. Jard. Bot. Buit. 3<sup>e</sup> sér. VIII (1927) 357, etc.

Boeroe: Without locality (L. J. TOXOPEUS n. 137). Nal'Besi 800 m (L. J. TOXOPEUS n. 247, coll. SAPRIN 3 July 1921). Leksoela 1000 m (L. J. TOXOPEUS n. 647, coll. SAPRIN 22 October 1921).

**Eulophia macrostachya** LNDL. Gen. et sp. Orch. (1833), 183; etc.

Boeroe: Mefa, c. 30 m, lime (L. J. TOXOPEUS n. 46, coll. SAPRIN 16 March 1921). Nal'Besi, 1100 m, in humus in forest on sandstone (L. J. TOXOPEUS n. 205, coll. SAPRIN 13 June 1921).

**Eulophia squalida** LNDL. Bot. Reg. XXVII (1841); etc.

Boeroe: Near Mnges'Waen, c. 900 m, on weather-beaten lime (L. J. TOXOPEUS n. 120, 14 April 1921).

MICROSTYLIS NUTT.

**Microstylis crassidens** J. J. S. n. sp.

*Caulis* e basi decumbente radicante erectus, cum ramulo c. 32.5 cm longus, c. 7folius. *Folia* oblique oblongo-subovato-elliptica, breviter triangulo-acuminata, acuta, basi valde obliqua, undulata, nervis c. 5 subtus prominentibus, sicco membranacea, c. 7.75—8.5 cm longa, 2.9—3 cm

lata; petiolus canaliculatus, cum vagina tubulosa c. 2.2—2.8 cm longus. *Inflorescentia* elongata, laxe multiflora, diu flores gignens, pedunculo anguste alato, c. 9.5 cm longo, nonnullis vaginulis bracteiformibus adpressis donato, rachide anguste alata, 18 cm superante. *Bracteeae* reflexae, lanceolato-triangularae, acutae, concavae, ad c. 0.5 cm longae, superiores minores. *Flores* parvi, quaquaversi, patentissimi, fere 0.6 cm lati. *Sepalum dorsale* deorsum spectans, oblongo-ovatum, obtusum, convexum, 3nervium, c. 0.34 cm longum, 0.175 cm latum. *Sepala lateralialia* patentia, divergentia, late oblique ovata, obtusa, apice recurva, valde convexa, 3nervia, c. 0.3 cm longa, bene 0.2 cm lata. *Petala* divergentia, medio fere valde recurva, late linearia, in  $\frac{1}{3}$  supra basin subfalcatula, obtusa, convexa, 1nervia, c. 0.3 cm longa, 0.075 cm lata. *Labellum* hippocrepidiforme, fovea longitudinali, late oblongo-quadrangula, pariete tenui, marginibus convexo-incrassata, basi lamella humili transversa, lobo intermedio semiovali, 2lobulo, lobulis falcato-triangularibus obtusis apice tegentibus convexo-incrassatis, in utraque parte lobi intermedii dentibus 2 multo minoribus inter se subaequimagnis triangulis subacutis convexis, sulcis radiatis e sinibus decurrentibus auriculis subparallelis triangulis obtusis, explanatum ambitu quinquangulare, totum c. 0.475 cm, usque ad basin 1.275 cm longum, 0.4 cm latum, lobo intermedio 0.1 cm longo 0.175 cm lato, auriculis 0.2 cm longis, basi 0.17 cm latis. *Gynostemium* a dorso compressum, a dorso visum quadrangulum superne dilatatum, c. 0.125 cm longum, bene 0.1 cm latum, clinandrio concavo, auriculis divergentibus verticalibus obtusis. *Anthera* cucullata, transversa, reniformis, obtusissima, 0.075 cm lata. *Pollinia* 4, a dorso compressa, in corpuscula 2 oblique obcordata unita, 0.04 cm longa. *Rostellum* membranaceum, auriculis paulo brevius, brevissime late remote obtuse bidentatum. *Ovarium* pedicellatum obtusangule curvatum, 6angulatum, c. 0.35 cm longum.

Boeroe: Na'Besu, 800 m (L. J. TOXOPEUS n. 259, coll. SAPRIN 9 July 1921; "flowers light red and yellow").

Amongst the numerous allied species this is well distinguished by the broad rounded midlobe and the thickened teeth.

Description from herbarium.

**Microstylis Toxopei** J. J. S. in Bull. Jard. Bot. Buit. 3e sér. VIII (1926), 40.

Boeroe: Without locality (L. J. TOXOPEUS, liv. pl. cult. in Hort. Bog. sub n. 146).

#### OBERONIA LNDL.

**Oberonia dimorphophylla** J. J. S. n. sp.

*Caules* approximati, elongati, serpentini, foliati, c. 5.5—10 cm longi, cum foliis c. 1.3—1.7 cm lati, radicibus tenuibus. *Folia* c. 8—11, inarticulata, erecto-patentia, inferiora (infimis exceptis) interdum valde elongata linearia apicem versus angustata, acuta, basi supra fissa dorso ad c. 8.75 cm longa

parte integra 6.75 cm longa basi 0.8 cm lata, folia normalia triangula falcato-incurva acuta basi supra fissa dorso tota ad c. 3.35 cm longa margine superiore ad 2.5 cm longa, 0.7 cm lata, mediana maxima, superiora inferioraque decrescentia. *Inflorescentia* subdense multiflora, apice laxa, pedunculo c. 0.7—1 cm longo, vaginulis raris donato, rachide costata, c. 5—6 cm longa. *Flores* parvi, spiraliter vel in verticillos spiraliformes dispositi, approximati, c. 0.23 cm longi, sepalis petalisque valde revolutis. *Sepalum dorsale* ovatum, obtusum, c. 0.1 cm longum, fere 0.075 cm latum. *Sepala lateralia* oblique ovata, obtusa, bene 0.1 cm longa et fere aequilata. *Petala* linearia, obtusa, fere 0.1 cm longa, vix 0.025 cm lata. *Labellum* bene majus, 3lobum, sagittatum, basi excavatione orbiculari-quadrangula margine incrassata donatum, 3nervium, carnosulum, totum c. 0.24 cm, usque ad basin 0.17 cm longum; lobi laterales erecti, gynostemium amplectentes et bene superantes, antice angulato-convexi et oblique carinati, dorso concavi, irregulariter marginati, explanati oblique subrhombi, breviter acuminati, subacuti, margine exteriori bene 0.1 cm longi, bene 0.05 cm lati; lobus intermedius multo major, cum ovario angulum rectum faciens, porrectus, ovatus, basi leviter contractus, fere  $\frac{1}{3}$  parte apicali bidentatus, dentibus oblique triangulis acutis margine exteriori serrulatis sinu angusto separatis, denticulo acuto reverso in sinu, c. 0.15 cm longus, bene 0.1 cm latus. *Gynostemium* brevissimum, c. 0.06 cm longum, clinandrio transverso concavo, auriculis triangulis obtusis. Anthera cucullata, rotundato-quadrangula, apice in lobulum brevem obtusum producta, connectivo costato-incrassato. *Rostellum* breve, quadrangulum, retusum. Stigma transverse fissuriforme. *Ovarium* pedicellatum c. 0.125 cm longum.

Boeroe: Wai Eno, c. 900 m, epiphytocal (L. J. TOXOPEUS n. A 2, 3 February 1922; "flowers yellowish").

Near *O. lucida* J. J. S. from Ambon but the stems shorter, much more serpentine, the leaves distinctly falcate and less numerous.

Description from a dried specimen in fruit but with a few unfertilized flowers mixed with the fruits.

***Oberonia enoensis* J. J. S. n. sp.**

*Caulis* approximati, elongati, serpentine, omnino foliati, c. 3.5—6.5 cm longi, radicibus tenuibus. *Folia* c. 8—10 approximata, inarticulata, patentia, longiuscula, lanceolato-triangula, acuta, subincurvula, basi sensim in vaginam abientia, dorso ad c. 3.25—3.5 cm longa, parte non fissa c. 2—2.5 cm longa, 0.7 cm lata (sicco). *Inflorescentia* erecta, dense multiflora, apice laxa, pedunculo c. 1.3 cm longo, vaginula 1 foliacea nonnullisque bracteiformibus donato, rachide sicco sulcata, sparse hirtella, c. 5 cm longa. *Bracteae* adpressae, oblongo-triangulae, longe acuminatae, acutissimae, concavae, ciliatae, dorso puberulae, ovarium pedicellatum superantes, c. 0.2 cm longae, 0.075 cm latae. *Flores* parvi in pseudoveriticillis ad c. 6-meris dispositi, patentissimi, c. 0.175 cm late, 0.18 cm longi, sepalis dorso sparse hirtellis petalisque patentissimis non reflexis. *Sepalum dorsale* late ovatum, acutum, c. 0.08 cm longum, 0.06 cm latum. *Sepala*



*lateralia* oblique ovata, vix acuminata, acuta, c. 0.08 cm longa, vix 0.06 cm lata. *Petala* oblique oblonga, obtusa, irregulariter marginata, glabra, c. 0.08 cm longa, bene 0.025 cm lata. *Labellum* leviter incurvulum, leviter concavum, dorso leviter convexum, 3lobum, panduratum, excavatione semiorbiculari ad basin, 3nervium, totum c. 0.12 cm longum, ad lobos laterales fere 0.1 cm latum, lobis lateralibus reverso-patentibus, incurvulis, gynostemium subamplectentibus, oblique triangulis, obtusis, lobo intermedio sinibus obtusangulis a lobis lateralibus sejuncto, ambitu transverse sexangulato, apice sinu rectangulo bilobulata et margine exteriori lacerato, c. 0.06 cm longo, fere 0.1 cm basi 0.04 cm lato. *Gynostemium* brevissimum, dorso convexum, c. 0.03 cm longum, clinandrio truncato transverse ovali concavo. *Anthera* cucullata, transverse ovalis, apice in rostrum breve obtusum producta. *Stigma* suborbiculare. *Ovarium* sparse hirtellum, pedicellatum, c. 0.15 cm longum. *Capsula* patentissima, trigona cum costa conspicua in lateribus orbicularibus ovalibusve, c. 0.175 cm ad fere 0.2 cm longa, pedicello 0.05 cm longo.

Boeroe: Wai Eno, 600 m, epiphytical (L. J. TOXOPEUS n. 94, coll. SAPRIN 5 April 1921; "flowers light yellow").

A species of the section *Adenorhachis* and nearly allied with *O. lampongensis* J. J. S. from southern Sumatra. More materials of both should be compared.

Description from herbarium.

#### LIPARIS L. C. RICH.

*Liparis odorata* LNDL. Gen. et sp. Orch. 29; etc.

Boeroe: Near the marsh of Mnges'Waen, c. 800 m, on a slope (L. J. TOXOPEUS n. 121, 15 April 1921).

*Liparis Toxopei* J. J. S. n. sp.

*Rhizoma* abbreviatum, radicibus tenuibus pilosis, innovationibus basi vaginis sese amplectentibus ad c. 3—4 cm longis donatis. *Folium* cordato-reniforme, abrupte acute triangulo-acuminatum, lobis basilaribus late rotundatis, curvinervium, nervis majoribus c. 9, sicco membranaceum, c. 5.75—9.5 cm longum; 4.2—7.2 cm latum; petiolus canaliculatus, basi dilatata basin pedunculi includens, c. 2.5—5 cm longus. *Inflorescentia* erecta, apice dense multiflora, pedunculo basi pseudobulboso-incrassato, superne anguste alato, nudo, c. 6.5—12.5 cm longo, rachide anguste alata, c. 0.15—0.325 cm longa. *Bractee* e basi late triangula acuminatae, ad bene 0.2 cm longae. *Flores* quaquaversi, macerati c. 0.95 cm longi. *Sepalum dorsale* erectum, recurvum, marginibus revolutis tubulosum, anguste oblongum, apicem versus sensim angustatum, obtusum, 3nervium, fere 0.6 cm longum, fere 0.2 cm latum. *Sepala lateral*ia sub labello porrecta, marginibus recurvis, oblique oblonga, obtusa, 3nervia, c. 0.525 cm longa, 0.2 cm lata. *Petala* reflexa, marginibus revolutis tubulosa, oblique linearia, falcata, obtusa,

1nervia, 0.5 cm longa, 0.05 cm lata. *Labellum* porrectum, recurvulum, simplex, ex ungue brevi concavo cuneato-quadrangulo transverse ovale, apice lato satis truncatum cum lobulo brevissimo truncato in medio, 3nervium, totum c. 0.53 cm longum, 0.55 cm latum, ungue 0.1 cm longo. *Gynostemium* valde curvatum, basi incrassatum, in utraque stigmatis parte rotundato-dilatatum, absque anthera c. 0.225 cm longum, clinandrio transverso. *Stigma* longitudinale. *Ovarium* pedicellatum c. 1 cm longum. *Capsula* erecta, clavata, c. 1 cm longa, in valvas 3 latas 3 angustas basi apiceque cohaerentes dehiscens, pedicello c. 1 cm longo.

Boeroe: Top of Fat'Koton, near Fakal, 1475 m, open forest, in humus on lime (L. J. TOXOPEUS n. Bb, 1 March 1922; "flowers light green suffused with dark brown on the lip, centre of lip polished").

A near ally of *L. javanica* J. J. S. (sect. *Rhachidibulbon*), but with longer inflorescences and smaller differently coloured flowers. It could not be stated whether there were calli on the lip or not and the description of the column wants revision after fresh flowers or material preserved in alcohol.

Description from herbarium.

***Liparis ?confusa*** J. J. S. in Fl. Buit. VI, Orch. (1905), 275; etc.

Boeroe: Between Wae Eken and Mnges'Waen, c. 700 m, on lime stone in dense forest (L. J. TOXOPEUS n. 66, coll. SAPRIN 23 March 1921; "sepals and petals greenish, lip orange, bordered yellow").

This much resembles a broad-leaved form of *L. confusa* J. J. S. in habit, but the flowers were in too bad a state for examination.

***Liparis carinatisepala*** J. J. S. n. sp.

*Rhizoma* breve, ramosum, radicans, *Pseudobulbi* approximati, parvi, sicco ad c. 1.5—2 cm longi, 1 (interdum 2-?) folii, nonnullis vaginis imbricantibus canaliculatis sensim longe acutatis acutis ad c. 4.5 cm longis ad basin. *Folium* erectum, anguste lanceolatum, acutum, basi sensim canaliculato-petiolato-angustatum, nervis majoribus c. 5, sicco tenuiter papyraceum, c. 8.5—24 cm longum, 1—2.2 cm latum. *Inflorescentia* synantha, laxe paucipluriflora, pedunculo ancipiti, alato, c. 6.5—11 cm longo, c. 0.2—0.275 cm lato, rachide compressa, 3alata, flexuosa, c. 4.5—12 cm longa, internodiis facie flores versus spectante excavatis approximato-bialatis ala tertia opposita, ad c. 1.8—2.2 cm longis. *Bractee* adpressae, lineari-triangularae ad lineares, carinatae, ad c. 0.55—1.2 cm longae. *Flores* c. 6—11, patentes, mediocres. *Senalum dorsale* cum ovario angulum rectum faciens, recurvum, marginibus revolutis fere tubulosum, explanatum anguste triangulo-oblongum, apicem versus sensim angustatum, obtusum, nervis 3 approximatis, costa media supra canaliculata dorso valde incrassata, c. 0.775 cm longum, basi 0.25 cm lata. *Sepala lateralialia* porrecta, recurva, obtusangule canaliculata, marginibus valde recurvis, anguste oblique oblonga, falcata, obtusa, nervis 3 approximatis, costa media dorso conspicue incrassata, c. 0.68 cm longa, bene 0.2 cm lata.

*Petala* patentissima, marginibus valde recurvis fere tubulosa, linearia, falcata, obtusa, basi paulo dilatata, 1nervia, c. 0.7 cm longa, 0.075 cm lata. *Labellum* fere parallelum gynostemio erectum, medio fere arcuato-recurvum, simplex, parte inferiore lateribus erectis convexis late canaliculata, marginibus in  $\frac{2}{5}$  partibus supra basin recurvis superne undulatis, parte antica leviter concava, callo transverso obtuse bilobulo supra basin, 3nervium, nervis approximatis exterioribus basi furcatis ceterum ramosis, explanatum e basi leviter contracta ima basi utrinque leviter rotundato-dilatata subovale, apice subrotundato-obtusissimum erosulum, c. 0.6 cm longum, supra basin 0.275 cm, medio fere 0.4 cm latum. *Gynostemium* cum ovario angulum obtusum faciens, satis gracile, curvatum, basi bene dilatatum, apice in utraque stigmati parte ala dentiformi conspicua reversa deorsum spectante oblique triangula acuta donatum, c. 0.34 cm longum, basi 0.16 cm latum, clinandrio concavo transverse oblongo-quadrangulo. *Anthera* cucullata, apice conspicue producta et dorso convexa subtus concava, ambitu subovato-quadrangula, apice rotundato-truncata, c. 0.12 cm longa, 0.08 cm lata. *Pollinia* 4, oblonga. *Stigma* transverse lunatum. *Ovarium* c. 0.3 cm longum, cum pedicello 0.8 cm longo, 6costatum. *Capsula* (immatura) clavata, c. 1.2 cm longa, pedicello 1.5 cm longo.

Boeroe: Wakollo, 700 m, epiphytial (L. J. TOXOPEUS n. 241, coll. SAPRIN 25 June 1921; "flowers light green"). Between Leksoela and Fakal, 1100 m, epiphytial (L. J. TOXOPEUS n. 415, coll. SAPRIN 27 August 1921, in fruit; "flowers pale green").

Resembling *L. cleistogama* J. J. S. from Ambon but with smaller flowers and a very different lip.

To the nearer allies belong in my opinion *L. Forbesii* RIDL., *L. plantaginea* LNDL., *L. torta* HOOK. F., *L. caespitosa* LNDL. *L. bicornuta* SCHLTR., *L. viridiflora* LNDL., etc. which SCHLECHTER distributes over his sections *PlatyGLOSSUM* and *Hologlossum*.

Description from herbarium and materials preserved in alcohol.

***Liparis minima*** LNDL. Gen. et sp. Orch. (1830), 32; etc.

Boeroe: Nal'Besi, c. 850 m (L. J. TOXOPEUS n. 231, Coll. SAPRIN 23 June 1921; in fruit).

It seems to be questionable whether this species should be united with *L. caespitosa* LNDL.

***Liparis togensis*** J. J. S. n. sp.

*Rhizoma* elongatum, repens, radicans. *Pseudobulbi* c. 3 cm dissiti, cum rhizomate angulum acutum facientes, sicco compresso-ovati, c. 0.8—1.5 cm longi, 1folii, initio pluribus vaginis superne accrescentibus bifariis basi tubulosis ceterum conduplicatis falcato-incurvis acutis acute carinatis ad c. 4.5 cm longis ad basin. *Folium* articulatum, erectum, lineare, sensim acutatum, acutum, basi angustatum conduplicatumque, nervis 3 majoribus dorso

prominentibus, c. 10—14.25 cm longum, sicco 0.65—0.8 cm latum; vagina tubulosa, lateraliter compressa, c. 1.4—1.75 cm longa. *Inflorescentia* apice dense multiflora, diu flores gignens, pedunculo ancipiti, c. 8.5—11 cm longo, 0.1—0.12 cm lato, rachide leviter flexuosa, 2 cm superante, cum bracteis bipectinata 0.65—0.7 cm lata, internodiis 0.125—0.15 cm longis, facie florem versus spectante excavatis. *Bractee* alternatim bifariae, patentes, condu-plicatae, basi rachidem semiamplectentes, apicem versus angustatae, acutae, carinatae, c. 0.4—0.45 cm longae. *Flores* singuli expansi, c. 1 cm longi, sepalis reflexis convexisque. *Sepalum dorsale* oblongum, obtusum, obtuse conico-apiculatum, 3nervium, costa media dorso incrassata apicem versus obtuse carinata, c. 0.56 cm longum, 0.23 cm latum. *Sepala lateralia* oblique oblonga, obtusa, apiculata, 3nervia, costa media dorso carinata, c. 0.575 cm longa, 0.3 cm lata. *Petala* erecta, oblique subspathulato-ligulata, obtusa, leviter convexa, 1nervia, c. 0.525 cm longa, superne 0.14 cm lata. *Labellum* basi erectum, in fere  $\frac{1}{3}$  supra basin abrupte recurvum cum plica bullato-convexa utrinque, apice canaliculato utrinque convexo recurvum, parte erecta subtus medio concava utrinque convexa, callo conspicuo gynostemio adpresso a dorso compresso transverse rotundato-subquadrangulo dorso leviter 3lobulo antice basi excavato ad basin, callis 2 minoribus collateralibus trigono-dentiformibus sulco separatis antepositis, inexplanatum ambitu quadrangulum, dimidio superiore paulum contractum, apice truncatum angulis rotundatum medio in lobulum brevem rotundato-triangulum productum, parte antica papillosum, c. 0.375 cm longum, basi 0.325 cm apice 0.25 cm latum, explanatum 0.44 cm longum, basi 0.35 cm, apice 0.24 cm latum. *Gynostemium* erectum, a dorso compressum, ambitu oblongo-quadrangulum, praesertim dimidio superiore angustatum, truncatum, dorso satis alte convexum, utrinque carnosum-alatum, basi latissima ovario multo latiore utrinque obtuse triangulo-prominens, dimidio superiore antice alis 2 parallelis erectis triangulis donatum, c. 0.275 cm longum, basi 0.22 cm apice 0.12 cm latum, clinandrio transverso concavo, auriculis brevibus obtusissimis. *Anthera* cucullata, ambitu angulato-suborbicularis, apice truncata, basi leviter gibbosa, c. 0.07 cm lata. *Rostellum* breve, triangulum. *Stigma* transverse quadrangulum. *Ovarium* pedicellatum 6costatum, c. 1.1 cm longum.

Boeroe: In the north-western part, Goenoeng Toga, c. 1900 m, common in the summit-region (E. STRESEMANN n. 572, February 1912; "flowers dark orange").

Near *L. quadribullata* SCHLTR. from Selebes but with relatively broader leaves, the lip not emarginate at the tip and the column more than half the length of the petals.

Description from herbarium.

#### AGROSTOPHYLLUM BL.

*Agrostophyllum* n. sp.

Boeroe: Ehoe, 1000 m, epiphytial (L. J. TOXOPEUS n. 299, coll. SAPRIN 21 September 1921; in fruit).

The plant is in fruit so that I could not describe it. I mention it here, because it belongs to the section *Dolichodesme*, which was not yet found to the West of New Guinea. The species seems to be allied to *A. lamellatum* J.J. S. and *A. cyclopense* J.J. S.

## GLOMERA BL.

**Glomera amboinensis** J.J. S. in Bull. Dép. Agric. Ind. néerl. XV (1908), 28.—*Glossorrhyncha amboinensis* RIDL. in Journ. Linn. Soc. Bot. XXVIII (1891), 342, pl. XLIV.

var. **buruensis** J. J. S. n. var.

*Caulis* approximati, ramosi, tenues, c. 12 cm longi, internodiis c. 1.2—0.3 cm longis. *Folia* patentia, anguste lanceolata, apice angustata oblique obtusa vel subbilobula, basi brevissime contracta, costa media dorso prominula, sicco utrinque sparse atro-punctata, subcarnoso-coriacea, c. 1—2 cm longa, 0.24—0.3 cm lata; vaginae tubulosae, internodia superantes, longitudinaliter plus minusve prominule nervosae, densius inferne laxius verrucosae, apice adpresse setoso-fimbriatae, fuscae. *Inflorescentia* terminalis, 1flora, obtusangule nutans, vaginula basi brevissime tubulosa, explanata late ovata, subacuminata, acuta, nervis 5 dorso leviter prominulis, dorso furfuraceo-punctata, membranacea, c. 0.77 cm longa, c. 0.55 cm lata. *Bractea* vaginula brevior tenuiorque, altius tubulosa, explanata orbiculari-ovata, obtusa, 1nervia, dorso furfuraceo-punctata, calcar ovariumque amplectens, bene 0.7 cm longa, 0.66 cm lata. *Flos* maceratus c. 2 cm latus. *Sepalum dorsale* oblongo-ellipticum, obtusum, apiculatum, 5nervium, fere 1.1 cm longum, 0.38 cm latum. *Sepala lateralialia* basi brevissime connata, oblique oblonga, subfalcata, apicem versus angustata, obtusa, obtuse apiculata, margine antico basi breviter lobato-dilatato calcari adpressa, 5nervia, c. 0.95 cm longa, fere 0.4 cm lata. *Petala* oblongo-rhombea, obtusa, retusa, 3nervia, bene 1 cm longa, 0.5 cm lata. *Labellum* basi gynostemio adnatum, longe calcaratum; lamina concava, gynostemium longe superans, basi transverse incrassata, explanata transverse ovali-orbicularis, obtusissima, c. 0.5 cm longa, 0.6 cm lata; calcar cum lamina angulum obtusum faciens, rectum, subteres, dorso applanatum, obtusum, ovario brevius, dorso 0.55 cm longum. *Gynostemium* breve, dimidio inferiore labello adnatum, c. 0.25 cm longum, clinandrio dentato. *Anthura* cucullata, suborbicularis, apice recurva rotundata vix retusa, connectivo gibboso postice excavato, c. 0.15 cm lata. *Pollinia* 4, leviter compressa, oblique obovato-ovalia. *Rostellum* magnum, latum, bilobum, convexum. *Ovarium* 6costatum, c. 0.8 cm longum.

**Boeroe:** In the north-western part, Goenoeng Toga, 200 m (E. STRESEMANN n. 401, February 1912; "flowers yellowish white").

This plant differs from the type in the smaller dimensions, a relatively larger almost orbicular lip and shorter spur. Hence I have described it provisionally as a variety, the material at hand being very scanty. More

material of both forms, and flowers preserved in alcohol should point out whether the variety may be kept upright.

Description from herbarium.

#### EPIBLASTUS SCHLTR.

##### *Epiblastus buruensis* J. J. S. n. sp.

*Rhizoma* breve, crassum, brevinode, radicibus tenuibus firmis pilosis. *Pseudobulbi* approximati, carnosi, 4.75—11 cm longi, 1folii, pluribus vaginis alternatim bifariis imbricantibus adpressis basi tubulosis superioribus articulatis triangulis conduplicatis acutis dorso carinatis ad c. 3.5—6.5 cm longis, inferioribus decrescentibus inarticulatis ad basin. *Folium* articulatum loriforme, apicem versus angustatum, obtusum vel acutum, apiculatum, basi conduplicatum, margine apicali crenulato-denticulatum, costa media supra sulcata dorso carinata, sicco papyraceum, c. 26—31 cm longum, 2.2—3 cm latum. *Inflorescentiae* e pseudobulbi novellis, c. 12—15 fasciculati, pedunculis tenuibus, teretibus, c. 5—9.5 cm longis, 1floris. *Bractea* e basi annulari subulata, c. 0.25 cm longa. *Flos* c. 0.87 cm longus. *Sepalum dorsale* ovatum, apicem versus angustatum, obtusum, 5nervium, c. 0.65 cm longum, 0.46 cm latum. *Sepala lateralialia* cum pede gynostemii mentum rectum latum rotundatum cum ovario angulum acutum fere rectum faciens a latere visum conicum c. 0.4 cm longum formantia, oblique triangula subacuminata, anguste obtusa, obtusangule concava, margine antico basi sacculata, 5nervia, c. 0.76 cm longa, margine antico 0.925 cm, basi 0.7 cm metientia. *Petala* oblique oblongo-ovata, acutiuscula, 3nervia, bene 0.6 cm longa, 0.275 cm lata. *Labellum* inferne incrassatione longitudinali oblongo-triangulo ungue bene angustiore pedi gynostemii longius adnatum, medio fere obtusangule recurvum, marginibus erectis incurvulis medio crispulis valde concavum,  $\frac{3}{5}$  partibus inferioribus carnosio-incrassatum, incrassatione in flexu valde rotundato-truncato-dilatata et verosimiliter medio leviter retusa, explanatum ambitu rhombeum, ex ungue quadrato in laminam cuneato-ovatum acutatam leviter triangulo-contractam acutam dilatatum, totum c. 0.83 cm longum, 0.53 cm latum, ungue 0.23 cm longo, 0.24 cm lato. *Gynostemium* breve, latum, dorso convexum, c. 0.36 cm longum, clinandrio transverso, reniformi, concavo, apice late producto rotundato semiovali, auriculis incurvis rotundatis. *Anthera* cucullata, subreniformis, apice obtusangula, fere 0.2 cm lata. *Stigma* transversum, subellipticum cum apice truncato, gynostemio fere aequilatum. *Pes gynostemii* cum ovario angulum acutum fere rectum cum gynostemio angulum acutum faciens, rectus, oblongus, c.  $\frac{2}{3}$  partibus superioribus labello adnatus, c. 0.36 cm longus. *Ovarium* subtereti-trigonum, 6sulcatum, c. 1.6 cm longum.

Boeroe: Way from Leksoela to Fakal, c. 1200 m, epiphytical (L. J. TOXOPEUS n. 407, 27 August 1921; "flowers light rosy, dark at the base and with a dark rosy spur inside dark rosy about the column, pollinia dark-violet, peduncle light rosy turning to very light green").

The only species agreeing in habit with the one described above is *E. basalis* SCHLTR. from New Guinea, which according to the description differs in the narrower floral segments and in the colour. It would perhaps be interesting to cultivate these plants. In my opinion it is not quite impossible that we have to do here with young plants of which the rhizome may develop later in the usual way.

Description from herbarium and a single flower preserved in alcohol.

#### CERATOSTYLIS BL.

##### *Ceratostylis nalbesiensis* J. J. S. n. sp.

Pusilla, caespitosa. *Caules* approximati, sectione ovales, carnosi, c. 2.5—4.5 cm longi, 0.25 cm lati (macerati), basi vaginis adpressis imbricantibus superne accrescentibus breviter acutatis sicco prominenter reticulato-venosis fuscis ad c. 1—1.5 cm longis interdum foliaceis tecti. *Folium* lineare, apice obliquum, utroque latere semiobtusum, canaliculatum, carnosum, costa media supra sulcata subtus non prominente, c. 2.15—2.55 cm longum, inexplanatum c. 0.3 cm latum (maceratum), vagina canaliculata, carnosum, c. 0.2 cm longa. *Inflorescentiae* fasciculatae, vaginulis numerosis lanceolatis acutis ad c. 0.45 cm longis exterioribus oblongo-triangularibus ad basin, pedunculis tenuibus parce pubescentibus c. 0.25 cm longis 1 floris basi c. 3 vaginulis conspicuis tubulosis, inflatis acutis tenuiter membranaceis superne accrescentibus ad c. 0.225 cm longis donatis. *Bractea* late triangula, leviter acuminata, acuta, conduplicata. *Flos* parvus, c. 0.33 cm longus. *Sepalum dorsale* oblongum, obtusum, breviter obtuse apiculatum, concavum, glabrum (vel subglabrum? 3nervium, bene 0.2 cm longum, fere 0.1 cm latum. *Sepala lateralia* lacinia) oblique ovali valde concava c. 0.125 cm longa decurrentia, mentum breve, reversum ovario adpressum saccatum inflatum subglobosum parce puberulum antice omnino clausum fere 0.1 cm longum formantia, porrecta, oblique oblongo-ovata, leviter acuminata, obtuse apiculata, leviter concava, 3nervia, fere 0.2 cm cum laciniis decurrentibus margine antico connatis bene 0.3 cm longa, bene 0.1 cm lata. *Petala* oblique lanceolata, acuta, leviter concava, c. 0.17—0.175 cm longa, c. 0.05 cm lata. *Labellum* parallelum gynostemio porrectum, gynostemium longe superans, basi sigmoideum, concavum, subtus convexum medio ventricosum, apice carnosum-incrassatum, 3nervium, costis 2 tenuibus longitudinalibus papillois in dimidio inferiore, explanatum ex ungue cuneato oblongum, c.  $\frac{1}{3}$  superiore contractum, apicem versus angustatum, obtusum, parte mediana marginibus tenuibus ciliolatisque, c. 0.25 cm longum, 0.1 cm latum. *Gynostemium* bipartitum, c. 0.08 cm longum, brachiis porrectis, oblongis, obtusis, margine incurvis, valde concavis, extus valde convexis. *Anthera* cucullata, transverse ovalis, basi quadrilobulata, apice leviter producto subtruncata, c. 0.06 cm lata. *Pes gynostemii* brevis, reversus, cum ovario angulum acutum faciens,  $\frac{2}{5}$  partibus superioribus rectangule incurvus, basi latiusculus canaliculatusque, apice tenuis. *Ovarium* pedicellatum 6sulcatum, puberulum, c. 0.18 cm longum.

Boeroe: Nal'Besi, c. 850 m, epiphytical (L. J. TOXOPEUS n. 230, coll. SAPRIN 18 June 1921; "flowers light brownish purple, lip yellow").

In the shape of the flowers this species resembles *C. parvifolia* J.J.S. from Selebes, which, however, has ensiform stems. The flowers recall also to *C. indifferens* J. J. S. from New Guinea, but in other respects this is a quite different plant.

Description from a single dried specimen.

#### APPENDICULA BL.

**Appendicula reflexa** BL. Bijdr. (1825), 301; etc.

Boeroe: Nal'Besi, c. 800 m (L. J. TOXOPEUS n. 234, coll. SAPRIN 22 June 1921; in fruit).

Though the material is in fruit I have little doubt that the determination is correct.

#### ERIA LNDL.

**Eria javanica** BL. Rumphia II (1836), 23; etc.

Boeroe: Wae Eken, c. 500 m (L. J. TOXOPEUS n. 69, coll. SAPRIN 23 March 1921). Fakal, 1300 m, terrestrial (L. J. TOXOPEUS n. 284, coll. SAPRIN October 1921; "flowers light yellow").

**Eria littoralis** T. et B. in Nat. Tijdschr. Ned. Ind. XXIV (1862), 312; etc.

Boeroe: Leksoela, 200 m (L. J. TOXOPEUS n. 648, coll. SAPRIN 26 October 1921).

I have enumerated this under the above name as it is still somewhat doubtful whether the species belongs to *E. bractescens* LNDL.

**Eria oligotricha** SCHLTR. in SCHUM. et LAUT. Nachtr. Fl. deutsch. Schutzgeb. Südsee (1905), 181; etc.

Boeroe: Way from Leksoela to Fakal, c. 1100 m, epiphytical (L. J. TOXOPEUS no. 408, 27 August 1921; "inflorescence light yellowish green, lip light yellow").

It is interesting that this plant, widely distributed in New Guinea, occurs also in Boeroe. It is a near ally of *E. xanthocheila* RIDL. from the western part of the Archipelago.

**Eria moluccana** SCHTR. et J. J. S. Orch. Ambon (1905), 74; etc.

Boeroe: In the south-eastern part, near Cape Li-boli, beach, on *Calophyllum* (L. J. TOXOPEUS n. 530, 22 September 1921). Ehoe, 1200 m (?), epiphytical (L. J. TOXOPEUS no. 611, coll. SAPRIN 3 October 1921).

A common beach plant in the Moluccas and Selebes. That the plant should be collected at an elevation of 1200 m seems to me rather doubtful.

According to a note of Mr. TOXOPEUS the flowers are fertilized by *Meli-phagides* (*Cinnyris* sp.).



***Eria carnosula* J. J. S. n. sp.**

*Rhizoma* breve, crassum, vaginis conspicuis. *Caules* approximati, erecti, subcylindrici, non clavati, apice 4folii, c. 17.5—21 cm longi, vaginis magnis tubulosis obtusis sicco verruculoso-rugulosis ad c. 5.5 cm longis tecti, internodiis longis apicalibus brevibus. *Folia* lineari-lanceolata, apicem versus sensim angustata, apice oblique semiobtusa, basi sensim canaliculato-angustata, nervis c. 7 sicco supra subtusque prominentibus, costa media supra sulcata, sicco rigide coriacea, c. 10—17 cm longa, 0.7—1.5 cm lata. *Inflorescentiae* e nodis superioribus pseudobulborum, dense multiflorae, glabrae, pedunculo tereti, c. 1.5—1.75 cm longo, nonnullis vaginulis adpressis triangularibus obtusis concavis ad 0.7 cm longis donato, rachide sulcata, costata, c. 5—6.5 cm longa. *Bractee* reflexae, ovatae, longe acuminatae, acutae, concavae, 3nerviae, ad c. 0.8 cm longae, 0.3 cm latae superiores minores. *Flores* parvuli, c. 0.6 cm longi, carnosuli, glabri. *Sepalum dorsale* oblongo-ellipticum, obtusum, valde concavum, 3nervium, nervis exterioribus basi furcatis, c. 0.575 cm longum, 0.275 cm latum. *Sepala lateralialia* cum pede gynostemii mentum breve reversum cum ovario angulum acutum faciens latum rotundatum retusum c. 0.1 cm longum formantia, obliqua, falcato-triangula, acutiuscula, valde concava, 3nervia, nervis exterioribus basi furcatis, crassa, c. 0.46 cm longa, margine antico 0.48 cm, basi 0.3 cm, supra basin 0.4 cm metientia. *Petala* oblique oblonga, falcata, obtusa, concava, 1nervia, fere 0.475 cm longa, 0.16 cm lata. *Labellum* cum pede gynostemii angulum acutum faciens, sigmoideum, simplex, concavum, nudum, 3nervium, explanatum ellipticum, obtusum, c. 0.44 cm longum, 0.275 cm latum. *Gynostemium* breve, rectum, latum, ad stigma dilatatum, supra subtusque convexum, apice sinu lato bilobulum, c. 0.25 cm longum, 0.2 cm latum, clinandrio transverse angulato-ovali cum costula longitudinali, auriculis triangularibus obtusis concavis. *Anthera* cucullata, reniformis, connectivo leviter convexo-incrassato, c. 0.14 cm lata. *Rostellum* 0. *Stigma* transversum, latissimum gynostemio aequilatum, semilunatum. *Pes gynostemii* cum ovario angulum acutum cum gynostemio angulum obtusum faciens, brevis, quadrangulus, c. 0.125 cm longus. *Ovarium* pedicellatum 6sulcatum, apice obliquum, c. 0.6 cm longum.

Boeroe: Way from Leksoela to Fakal, 1100 m, epiphytical (L. J. TOXOPEUS n. 420, 27 August 1921; "flowers orange yellow").

I am inclined to ascribe this as an aberrant form to the section *Polyura*, where the flowers and the lip without any thickenings are unusual. In habit it resembles deceptively a large specimen of *E. Toxopei* J. J. S., which is a true member of the *Polyura* section.

Description from herbarium and flowers preserved in alcohol.

***Eria Toxopei* J. J. S. n. sp.**

*Pseudobulbi* approximati, subteretes, superne non incrassati, carnosi, c. 5.5 cm longi, apice 3folii, vaginis magnis tecti. *Folia* lineari-lanceolata, apicem et basin versus angustata, apice oblique obtusa, latere brevi acuta

sed non in dentem producta, basi breviter canaliculato-petiolato-contracta, sicco rigide papyracea, c. 6—11 cm longa, 0.75 cm lata. *Inflorescentiae* e nodis superioribus, laxe multiflorae, glabrae, pedunculo brevi, tereti, c. 0.3—1 cm longo, nonnullis vaginulis carinatis donato, rachide angulata, c. 5.5—11 cm longa. *Bractee* persistentes, patentissimae vel reflexae, ovatae, acute acuminatae, 3nerviae, c. 0.53 cm longae, 0.3 cm latae. *Flores* in sectione mediocres, glabri. *Sepalum dorsale* lanceolatum, obtusum, breviter obtuse apiculatum, concavum, apice recurvulum; 3nervium, c. 0.7 cm longum, 0.225 cm latum. *Sepala lateralía* oblique lanceolata, apicem versus angustata, acutiuscula, apiculata, concava, apice recurvula, 3nervia, c. 0.7 cm longa, 0.2 cm lata. *Petala* oblique ovato-lanceolata, subacuta, concava, apice recurvula, 3nervia, c. 0.575—0.6 cm longa, 0.18—0.2 cm lata. *Labellum* porrectum, sepalis petalisque bene minus gynostemium superans, plus minusve undatum, apice interdum bene sigmoideum, concavum, marginibus infra apicem plus minusve recurvis, costis 2 longitudinalibus remotis simplicibus rotundatis in parte inferiore, 3nervium, basi medio membrana brevi more Bulbophylli pedi gynostemii affixum, c.  $\frac{1}{4}$  parte apicali papilloso-ciliolatum, explanatum oblongo-quadrangulum apicem versus paululum angustatum vel basi magis dilatata ovato-quadrangulum superne leviter contractum, apice late obtusangulum, obtuse apiculatum, angulis basilaribus rotundatum, c. 0.3—0.325 cm longum, 0.17—0.16 cm latum. *Gynostemium* subrectum, apice subgibbosum, sectione transversa trigonum, cum anthera 0.175 cm longum, clinandrio alte excavato transverse ovali, auriculis truncatis. *Anthera* cucullata, ambitu semiovalis, basi 4lobulata, connectivo suborbiculari cum costula longitudinali versus apicem, c. 0.075 cm lata. *Pollinia* 8, plusminusve pyriformia. *Stigma* rotundato-quadrangulum, margine inferiore dentibus 2 introrsis instructum. *Pes* gynostemii brevissimus, cum ovario angulum subrectum faciens, vix incurvulus, oblongus, truncatus, c. 0.08 cm longus. *Ovarium* pedicellatum 6sulcatum, c. 0.85 cm longum.

Boeroë: Nal'Besi, c. 850 m, epiphytical (L. J. TOXOPEUS n. 229, coll. SAPRIN 18 June 1921; "peduncle white, suffused with light purple, bracts light green, flowers greenish white, base of lip violet, apex light yellow"). Likoe Ewali (Koentoeran), c. 1200 m, on trees in swamp (L. J. TOXOPEUS n. 277, 9 July 1921, evidently flowering a month later than on the Rana).

In the shape of the lip very similar to *E. Hutchinsoniana* AMES from the Philippines but with the pseudobulbs approximate and longer, the inflorescences glabrous with larger ovate bracts. According to the description of AMES the flowers of the Boeroë plant are as large as those of the Philippines but according to LEAVITT they should be smaller.

In the specimens from Likoe Ewali the pseudobulbs are 7—9.5 cm long, the leaves 0.55—1.1 cm broad and stiff leathery, the peduncle up to 1.5 cm long and the rachis 9 cm.

Description from herbarium and flowers preserved in alcohol.

**Eria quadricolor** J. J. S. in Ic. Bogor. III (1906), 31, CCXIII; etc.

Boeroe: Between Leksoela and En'botit, c. 10 m, on limestone (L. J. TOXOPEUS n. 25, 25 February 1921; "dorsal sepal and petals white, lateral sepals white with yellow bars, lip light yellow with wine red side-lobes, column white"). Leksoela, 800 m (L. J. TOXOPEUS n. 646, coll. SAPRIN 22 October 1921; "flowers white, yellow and red").

**Eria buruensis** J. J. S. in Bull. Jard. Bot. Buit. 3e sér. VIII (1926), 47.

Boeroe: (L. J. TOXOPEUS, 1922, liv. pl. cult. in Hort. Bog. sub n. 119).

#### DENDROBIUM Sw.

**Dendrobium confluens** J. J. S. n. sp.

*Rhizoma* breve, valde ramosum. *Pseudobulbi* approximati, compressi, in planta juvenili oblongo-ovati, in planta adulta lineares, ancipites, basin versus paululum incrassati, c. 3–12 cm longi, sicco basi 0.35–0.6 cm lati, apice truncato c. 0.35 cm lati, 1folii, nonnullis vaginis imbricantibus acutis ad c. 3–5.5 cm longis initio ad basin. *Folium* lineari-lanceolatum, subaequaliter obtuse triangulo-bidentatum, basin versus sensim angustatum conduplicatumque, supra in utraque parte costae mediae canaliculatae convexum, dorso carinatum, coriaceum, c. 5.2–6.5 cm longum, 0.75–0.9 cm latum. *Inflorescentia* fascicularis, spatha compressa, sublineari, c. 2.5–2.8 cm longa, pedunculis c. 1.2 cm longis, 1floris, basi nonnullis vaginulis tubulosis tenuiter membranaceis ad c. 1.2 cm longis donatis. *Bractea* minuta, adpressa, triangula, acuta, c. 0.07 cm longa. *Flos* majusculus, tener. *Sepalum dorsale* e basi triangula concava marginibus incurvis longe tubuloso-filiformi-caudatum, 5nervium, c. 3.7 longum, basi 0.4 cm, medio vix 0.05 cm latum. *Sepala lateralialia* cum pede gynostemii mentum subrectum cum ovario angulum obtusum faciens conicum obtusum non retusum c. 0.55 cm longum formantia, e basi oblique triangula concava longe tubuloso-filiformi-caudata, inferne falcata, 5nervia, c. 4.4 cm longa, basi 0.66 cm lata. *Petala* e basi oblique lineari longe filiformia, canaliculata, 3nervia, c. 3.7 cm longa, basi 0.18 cm lata. *Labellum* erectum, valde recurvum, 3lobum, 3costatum, costis exterioribus inferne crassis rectis contiguibus basi confluentibus dorso canaliculatis ante basi lobi intermedii attenuatis usque in basin laminae lobi intermedii productis, costa tertia brevior supra basin lobi intermedii apice in costulam attenuata vix ultra medium laminae lobi intermedii producta, *inexplanatum* c. 0.875 cm longum, explanatum ex ungue brevi in lobos laterales cuneato-dilatatum, c. 1.3 cm, usque ad apicem loborum lateralium 0.6 cm longum, ungue 0.175 cm longo, ad lobos laterales c. 0.5 cm latum; lobi laterales erecti, subtrapezoidei, parte antica porrecti, trianguli, acuti, 0.13 cm longi; lobus intermedius magnus, porrectus, recurvulus, inter costas et in costis minute papillosus, unguiculatus, totus c. 0.8 cm longus, ungue quadrangulo undulato c. 0.25 cm longo fere 0.3 cm lato, lamina multo latiore, triangula obtusa angulis basilaribus rotundata praesertim postice longitudinaliter plicata c. 0.55 cm longa fere 0.6 cm

lata. *Gynostemium* rectum, oblongo-conicum, truncatum, absque anthera c. 0.25 cm longum, clinandrio concavo apice late obtuse triangulo, utrinque 3dentato, dentibus anticis (auriculis) paulo longioribus angustioribusque. *Anthera* cucullata, transverse ovalis cum lobulo utrinque apice minute puberula, fere 0.15 cm lata. *Pollinia* 4, lateraliter compressa, anguste oblongo-triangulara, bene 0.1 cm longa. *Stigma* alte excavatum, longitudinale, oblongum. *Pes gynostemii* cum ovario angulum obtusum cum gynostemio angulum acutum faciens, rectus, linearis, c. 0.5 cm longus. *Ovarium* 6sulcatum, minutissime puncticulatum, c. 0.325 m longum; pedicellus teres, c. 2.3 cm longus.

Boeroe: Likoe Ewali (Koentoeroen), c. 1200 m, peat-moor, epiphytical (L. J. TOXOPEUS n. 273, 9 July 1921; "flowers purple with the segments rose-coloured").

A species of the affinity of *D. compressicolle* J. J. S. from New Guinea. It is, however, a smaller plant with smaller flowers, acute side-lobes of the lip, the keels not undulate and confluent at the base and with a third keel on the midlobe.

In reference to the colour noted I suppose that the flowers were withering when collected.

Description from herbarium and a leaf and a flower preserved in alcohol.

***Dendrobium ephemereum*** J. J. S. in MERR. Interpret. Herb. Amb. (1917), 174; etc.

Boeroe: Leksoela, 800 m, on limestone (L. J. TOXOPEUS n. 645, leg. SAPRIN October 1921).

***Dendrobium excavatum*** MIQ. Fl. Ind. Bat. III (1859), 644; etc.

var. ***buruense*** J. J. S. n. var.

Caules quam in typo longiores, penduli, parum ramosi, c. 70 cm longi, cum foliis 3—3.8 cm lati. Folia erecto-patentia, c. 3.5—4.5 cm longa, 0.6—0.8 cm lata (sicco), parte non fissa c. 1.4—2.1 cm longa. Inflorescentiae axillares, brevissimae, bene ramosae. Anthera antice late quinquangularis.

Boeroe: Fakal, 1200 m (L. J. TOXOPEUS n. 463, 30 August 1921, brought by a native; in fruit). Also cultivated in Hort. Bog. sub n. 121 (127?).

This variety differs from the Javanese form in the larger dimensions of the stems and leaves. The flowers are of the same size and very similar but the anther is distinctly quinquangular in the macerated flower and it seems that the callus at the apex of the lip is somewhat different, but the material was not very good.

Probably the same plant is in cultivation in the Buitenzorg Gardens.

***Dendrobium ambotiense*** J. J. S. n. sp.

*Planta* parva. *Rhizoma* repens, ramosum, tenue, radicibus filiformibus. *Caules* c. 0.3—0.6 cm dissiti, cum rhizomate angulum acutum facientes, breves, c. 4—4.5 cm longi, ad c. 12folii, basi nonnullis vaginis brevibus donati,

cum foliis c. 5.5—6.3 cm lati, internodiis c. 0.4—0.425 cm longis. *Folia* majuscula, articulata, patentia, lateraliter compressa, lineari-lanceolata, dorso recta vel recurvula, acuta, breviter apiculata, pungentia, supra ad basin fissa, basi oblique rotundata, carnosae, supra ad c. 4.2—4.4 cm, dorso 4.5—4.7 cm longa, parte integra ad c. 3.1—3.7 cm longa, 0.7—0.75 cm lata; vagina brevis, tubulosa, valde lateraliter compressa. *Inflorescentiae* axillares et apicales, breves, ramosae, pedunculo c. 0.4 cm longo, vaginulis bracteis similibus imbri-cantibus basin versus decrescentibus tecto, ramis 1floris. *Bractea* adpressa, ovato-triangulari, subulato-acuminata, acutissima, carinata, c. 0.475 cm longa. *Flos* (fecundatus) sessilis, carnosus, c. 0.6 cm longus. *Sepalum dorsale* ovatum, acute acuminatum, concavum, marginibus superne incurvis, c. 0.35 cm longum, 0.2 cm latum. *Sepala lateralialia* cum pede gynostemii mentum conicum obtusum vix incurvulum c. 0.325 cm longum formantia, oblique triangulari, acuminata, acuta, concava, c. 0.325 cm longa, margine antico 0.48 cm basi 0.42 cm metientia. *Petala* anguste oblonga, acutiuscula obtusave, subulato-apiculata, concava, c. 0.27—0.275 cm longa, fere 0.1 cm lata. *Labellum* erectum, carnosum, paulum infra medium obtusangule recurvum, c. 0.44 cm longum, parte inferiora concava margine tenui papillosoaque, parte antica inferne concava subtus subventricosus-convexa, superne marginibus recurvis in utraque canaliculae parte convexa, apice acutangule retusa et subtus infra sinum dente conico acuto instructa, explanatum oblongo-rhombeum, obtusissimum, dimidio superiore fere lacinulato-erosum, c. 0.475 cm longum, 0.225 cm latum. *Gynostemium* brevissimum, dorso convexum, c. 0.1 cm longum, filamento subulato, auriculis rotundatis crenulatis concavis. *Pes gynostemii* incurvulus, oblongus, concavus, c. 0.3 cm longus. *Capsula* immatura subglobosa.

Boeroe: Amboti, epiphytical (L. J. TOXOPEUS n. 6, 12 February 1921).

Somewhat in the way of *D. lepoense* SCHLTR. but with much shorter stems, broader leaves, acuminate sepals; apiculate petals and a different lip. Description from a dried specimen with a single fertilized flower.

***Dendrobium acuminatissimum*** LNDL. Gen. et sp. Orch, 86; etc.

Boeroe: Msoema Lawan, north of Mefa, 1100 m, epiphytical (L. J. TOXOPEUS n. 549, 3 November 1921). Ehoë, 800 m (L. J. TOXOPEUS n. 614, coll. SAPRIN 6 October 1921).

This may be the var. *papuanum* J. J. S. from the Aroe Islands and New Guinea. Probably the same form was collected by DR. C. B. ROBINSON in Amboina.

***Dendrobium Toxopei*** J. J. S. n. sp.

*Rhizoma* breve, validum, ramosum, lignosum, radicibus crassis, sicco ad c. 0.35 cm diam. *Caules* approximati, elongati, simplices, duri, basi teretes, superne sectione transversa plus minusve elliptici, nitidi, c. 85 cm longi, inferne ad c. 0.4 cm diam., inferne vaginati, ceterum foliati, internodiis ad c. 3.5—4 cm longis, superioribus infimisque brevioribus. *Folia*

patentia, sublinearia, apicem versus angustata, apice valde obliqua, latere longiore obtusa, latere brevior obtusangula, basi semitorta brevissime conduplicata, dense nervosa, nervis costo media supra excepta sicco utrinque prominentibus, papyracea, c. 14.5—16 cm longa, 1—1.325 cm lata; vaginae tubulosae, internodia superantes, apice truncatae, sicco prominule nervosae et minute transverse rugulosae punctataeque. *Inflorescentiae* e nodis caulium, 2 vaginae perforantes, patentissimae, brevissimae, 2florae, vaginula brevi lateraliter compressa ad basin. *Flores* macerati sepalis petalisque conniventibus c. 1 cm longi. *Sepalum dorsale* oblongo-triangulum, sensim angustatum, subacutum, concavum, 3nervium, bene 0.8 cm longum, fere 0.4 cm latum. *Sepala lateralita* cum pede gynostemii mentum breve cum ovario angulum acutum faciens valde incurvum c. 0.55 cm longum formantia, oblique oblongo-triangula, acuta, margine antico basi rotundato-dilatata et breviter ultra apicem pedis gynostemii connata, concava, dorso ad apicem leviter verruculosa, 3nervia, costa media dorso prominente, c. 0.8 cm longa, margine antico 1 cm, basi 0.575 cm metientia. *Petala* oblique late linearia, apice breviter acutata, vix apiculata, 3nervia, c. 0.75 cm longa, 0.2 cm lata. *Labellum* porrectum, sigmoideum, concavum, 3lobum, gynostemium superans, 3nervium, costa singula superne inter lobos laterales altissima aliformis apicem versus decrescente et infra apicem in callum conspicuum transverse rugulosum terminante, inexplanatum c. 0.6 cm longum, explanatum ambitu spathulatum, ex ungue brevi in mesochylium ambitu ovale dilatatum, usque ad apicem lobi intermedii 0.74 cm, totum 0.8 cm, usque ad apicem loborum lateralium bene 0.4 cm longum, ad lobos laterales 0.28 latum; lobi laterales parvi, erecti, apice libero minuto porrecto oblique subtriangulo obtuso c. 0.07 cm longo; lobus intermedius multo major, e basi breviter unguiculata valde dilatatus, ambitu transverse ovalis, apice sinu lato rotundato 2lobulus, dente triangulo in sinu, lobulis antice triangulis obtusis, medio totus fere 0.4 cm longus, 0.6 cm latus, ungue c. 0.1 cm longo, 0.125 cm lato. *Gynostemium* longiusculum, rectum, dorso convexum, subtus concavum, cum anthera 0.525 cm longum, clinandrio leviter contracto truncato, transverse semiorbiculari, alte excavato, pariete tenui, filamento subulato subirregulariter marginato, auriculis brevibus, triangulis obtusi. *Anthera* cucullata, transversa, ambitu sexangularis, basi alte biloba, apice truncata, fere 0.2 cm lata. *Pollinia* 4, corpusculum orbiculare formantia, interiora lateraliter compressa, exteriora extus convexa, c. 0.125 cm longa. *Stigma* magnum, longitudinaliter ovale, inferne costulis 2 longitudinalibus basi confluentibus et in formam costulae in basin pedis gynostemii decurrentibus donatum. *Pes gynostemii* cum ovario angulum acutum vel subrectum faciens, incurvulus, linearis, canaliculatus,  $\frac{1}{3}$  superiore fere obtusangule incurvus et a sepalis lateralibus liber, in flexu marginibus elevatis alte canaliculatus, truncatus, c. 0.4 cm longus. *Ovarium* oblique obconicum, 6sulcatum, fere 0.4 cm longum; pedicellus tenuior, c. 1.2 cm longus.

Boeroe: Wa'Katini, 600 m, epiphytical (L. J. TOXOPEUS n. 73, coll. SAPRIN 26 March 1921; "flowers white and light yellow").

The only near ally as yet known to me is *D. sacculiferum* J.J.S. from Ternate, which, however, is easily distinguished by the long linear claw of the midlobe, the much shorter hypochyl and the much more saccate column foot.

Description from herbarium.

***Dendrobium Mirbelianum*** GAUD. Bot. Freyc. Voy. (1826), 423, t. XXXVIII; etc.

Boeroe: Leksoela, on *Sonneratia* in the sea (L. J. TOXOPEUS n. 27, 2 March 1921).

***Dendrobium anosmum*** LNDL. Bot. Reg. XXI (1844), Misc. 41; etc.

Boeroe: Ehoe, 1200 m, on limestone (L. J. TOXOPEUS n. 371, 29 September 1921).

***Dendrobium purpureum*** RXB. Fl. Ind. ed. 2, III (1832), 484; etc.

Boeroe: Nal Besi, 800 m (L. J. TOXOPEUS n. 187, coll. SAPRIN 10 June 1921).

***Dendrobium lancifolium*** A. RICH. Sert. Astrol. (1834), 20, t. 8; etc.

Boeroe: Leksoela, c. 10 m, on a barren rock, conglomerate (L. J. TOXOPEUS n. 26, 28 February 1921). Near Wa Katin, c. 750 m, on dry calcareous ground between grass (L. J. TOXOPEUS n. 67, coll. SAPRIN, 2 March 1921).

#### BULBOPHYLLUM THOU.

***Bulbophyllum pulchrum*** J. J. S. in Bull. Jard. Bot. Buit. 2e sér. VIII (1912), 27; etc.

Boeroe: Between Leksoela and En'botit, 10 m, on a tree on limestone (L. J. TOXOPEUS n. 20, 25 February 1921; in fruit). In the centre, WaTemoen, 850 m, forest in a high tree (L. J. TOXOPEUS, without number, February 1922; "fertilized by *Stigmatops deningeri* and *Myzomela wakoloensis*, and by butterflies").

***Bulbophyllum truncatisepalum*** J. J. S. n. sp.

*Rhizoma* elongatum, repens, teres, bene 0.1 cm diam, vaginis tubulosis internodiis longis brevioribus donatum, ad basin pseudobulborum tantum radicans. *Pseudobulbi* c. 2—4 cm dissiti, oblique depresso-ovoidei vel apice paulum producti, obtusi, c. 0.5—0.8 cm alti, 0.6—0.5 cm diam., 1folii. *Folium* oblongo-ovatum, apicem versus angustatum, breviter subacutum, breviter obtuse apiculatum, basi rotundata abrupte in petiolum brevissimum supra sulcatum contractum, costa media supra sulcata subtus versus apicem prominula, carnosum, c. 2.5 cm longum, 0.9—1 cm latum, petiolo c. 0.1 cm longo. *Inflorescentiae* e basi pseudobulborum, adscendentes, elongati, laxe pauciflorae, pedunculo tenui, breviter patentissime muriculato, c. 12.5—15 cm longi, vaginulis c. 5—6 tubulosis adpressis carinatis apiculatis donato, rachide tenui, quaquaverse flexuosa, verrucosa, c. 2—4 cm longa, internodiis c. 0.6—0.3

cm longis. *Bracteae* adpressae, oblongo-triangularae, acutae, subulato-apiculatae, concavae, costa media dorso prominente leviterque verruculosa, vix 0.15 cm longae. *Flores* c. 4—11, parvi, quaquaversi, 0.6 cm lati. *Sepalum dorsale* porrectum, concavum, apice obtusangule concavo tectiforme, subovato-quadrangulum, obtusissimum rotundato-truncatum, 3nervium, costa media dorso prominente, c. 0.5 cm longum, 0.325 cm latum. *Sepala lateralialia* porrecta, divergentia, recurva, oblique oblongo-triangulara, falcatula, obtusa, apiculata, margine antico basi rotundato-vel angulato-dilatata crenulataque, ceterum irregulariter marginata, 3nervia, c. 0.67 cm, margine antico 0.47 cm longa, basi 0.2 cm, supra basin 0.27 cm lata. *Petala* parva, porrecta, parallela, oblique subobovato-orbicularia, concava, 1nervia, fere 0.2 cm longa et lata. *Labellum* mobile, erectum, valde recurvum, simplex, parte inferiore usque ad medium fere marginibus erectis tenuibus ciliolatis canaliculatum, marginibus a medio patentissimis nudisque, apicem versus ligulato-angustatum, obtusum, 3costatum, costis exterioribus maximis usque ad apicem productis et superne sensim magis approximatis, costa intermedia tenuiore humilioreque apicem non attingente, inexplanatum c. 0.18 cm longum, 0.16 cm latum. *Gynostemium* breve, rectum, dorso convexum, supra visum subovatum, c. 0.15 cm longum, clinandrio concavo margine postico truncato retusoque cum filamento brevi dentiformi, auriculis brevibus, porrectis, triangulis, acutis, margine antico in dentem subaequimagnam deorsum spectantem triangulum auctis. *Anthera* alte cucullata, auriculas superans, supra visa ambitu suborbicularis, basi truncata subbilobulata, connectivo costiformi, c. 0.05 cm lata. *Pollinia* alta, ovato-triangulara, basi truncata, extus convexa. *Stigma* magnum, faciem inferiorem gynostemii fere omnino occupans, alte excavatum, margine inferiore incrassato sulco longitudinali bilobulo dente introrso instructo. *Pes gynostemii* cum ovario angulum obtusum faciens, linearis, apice hamato-incurvus, margine ultimo obtusangule recurvus et intus disciformi-dilatatus, apice rotundatus, inexplanatus c. 0.2 cm longus. *Ovarium* 6sulcatum, c. 0.15 cm longum; pedicellus 0.53 cm longus, 0.1 cm supra basin articulatus.

Boeroe: Fat'Koton (Fakal), 1475 m, epiphytial (L. J. TOXOPEUS n. Be, 1 March 1922; "flowers dark greenish yellow").

This is, as far as I know, the first species of the section *Ischnopus* recorded out of New Guinea. It is quite different from the Papuan species.

**Bulbophyllum odoratum** LNDL. Gen. et sp. Orch. (1830), 54; etc.

Boeroe: Msoema Lawai, north-east of Mefa, 1100 m, hard-dry limestone (L. J. TOXOPEUS n. 555, 3 November 1921).

This is the most eastern habitat of the species as yet known.

**Bulbophyllum sessile** J. J. S. in Fl. Buit. VI, Orch. (1905), 448; etc.

Boeroe: Wai Eno, 700 m, epiphytial (L. J. TOXOPEUS n. 93, coll. SAPRIN 5 April 1921).



## CYMBIDIUM Sw.

**Cymbidium lancifolium** HOOK. Exot. Fl. t. 51; etc.

Boeroe: Fat'Koton (Fakal), on the summit, 1475 m, in open forest on lime (L. J. TOXOPEUS n. Bd, 1 March 1922; "sepals pale creamy buff with a redbrown central bar, other segments white partly mottled or striped with redbrown").

Only a very small specimen with a one-flowered inflorescence was collected. When better materials are available it will prove perhaps to be a distinct variety or even a species.

According to SCHLECHTER *C. lancifolium* HOOK. and *C. javanicum* BL. should be different species. I have not seen Indian material but the descriptions and figures do not show differences.

## GRAMMATOPHYLLUM BL.

**Grammatophyllum scriptum** BL. Rumphia IV (1848), 48; etc.

Boeroe: Leksoela, 800 m (L. J. TOXOPEUS n. 642, coll. SAPRIN 22 October 1921).

## THELÄSIS BL.

**Thelasis carinata** BL. Bijdr. (1825), 386; etc.

Boeroe: Wa Katin, c. 600 m, epiphytical (L. J. TOXOPEUS n. 162, 20 April 1921).

**Thelasis capitata** Bl. Bijdr. (1825), 386; etc.

Boeroe: Leksoela, on a tree on the beach (L. J. TOXOPEUS n. 1, 9 February 1921).

## PHREATIA LNDL.

**Phreatia Schoenorchis** J. J. S. n. sp.

*Caules* elongati, dependentes, apice incurvi, compressi, sectione transversa elliptici, c. 24—52 cm vel plus longi, sicco 0.44 cm diam., apice foliati, basi radicantes, internodiis c. 1.4—1.8 cm longis. *Folia* sensim decidua vaginas relinquuntia, patentia, loriformia, inaequaliter obtuse biloba, basi conduplicata, costa media supra sulcata, subtus carinata, sicco firmiter papyracea, c. 6.5—10 cm longa, sicco 1—1.5 cm lata; vaginae internodia superantes, basi tubulosae, apice conduplicatae, medio membranaceo-marginatae (rumpentes?), apice truncatae, sicco rugulosae. *Inflorescentiae* axillares, dense multiflorae, pedunculo c. 10 cm longo, parte inferiore vaginis foliorum incluso, pluribus (c. 6) vaginulis tubulosis acutis donato, rachide costata, glabra, 6 cm superante. *Bractee* ellipticae, acutae, basi latae, concavae, membranaceo-marginatae, c. 0.34 cm longae, fere 0.2 cm latae. *Flores*

parvi. *Sepalum dorsale* ovatum, acutum, c. 0.2 cm longum, 0.13 cm latum. *Sepala lateralia* mentum breve ovario adpressum antice apertum formantia, oblique ovata, acuta, basi margine antico rotundato-producto basin labelli amplectentia, 1nervia, c. 0.2 cm, margine antico 0.25 cm longa, fere 0.2 cm lata. *Petala* oblique ovata, obtusa, breviter obtuse apiculata, c. 0.16 cm longa, 0.1 cm lata. *Labellum* unguiculatum, 3nervium, bene 0.2 cm longum, ungue gynostemio parallelo canaliculato, lamina obtusangule recurva canaliculata lateribus patente undulata intus inferne puberula, explanatum totum c. 0.23 cm longum, ungue oblongo c. 0.1 cm longo, lamina aequilateraliter trapeziformi, dimidio superiore leviter contracta, apice subtruncata vix retusa cum lobulo minimo in sinu, angulis apicalibus rotundata, basi fere truncata angulis basilaribus obtusis vix reversis, c. 0.15 cm longa, bene 0.2 cm lata. *Gynostemium* breve, latum, dorso convexum, absque anthera c. 0.1 cm longum, clinandrio alte excavato transverso, pede reverso, cum ovario angulum acutum faciente, c. 0.05 cm longo. *Anthera* reniformi-cordata, breviter obtuse acuminata, basi bilobulata, lobulis retusis, fere 0.1 cm lata. *Pollinia* 8, oblique cuneato-triangula, stipite subspathulata, glandula parva anguste lineari. *Rostellum* porrectum, satis conspicuum, sinu angusto alte in lacinas 2 subulatas acutas leviter falcutulas partitum. *Stigma* transversum. *Ovarium* crassiuscule teres, c. 0.3 cm longum; pedicellus tenuior, c. 0.075 cm longus.

Boeroe: Fat'Koton, 1350 m, epiphytical (L. J. TOXOPEUS without number, 2 March 1922; "flowers greenish white").

The only not Papuan species of the section *Caulophreatia* are *Ph. caulescens* AMES from the Philippine Islands and *Ph. cauligera* RCHB. F. from the Sandwich Islands. The species described above is the third one. The nearest ally is *Ph. elongata* SCHLTR. which is as large, but has smaller flowers, a different lip and anther, and probably much longer inflorescences, but those of *Ph. Schoenorchis* were very young.

Description from herbarium only.

#### ***Phreatia rotundata* J. J. S. n. sp.**

*Caulis* brevis, sensim folia dimittens, inferne fibris vaginalium tectus, ex axillis plus minusve ramosus, basi dense radicans, radicibus tenuibus flexuosis. *Folia* 6—8, densa, patentia, articulata, linearia, apice obliqua, latere longiore oblique rotundata, latere brevior semiobtusa, inferne longe conduplicata, costa media supra sulcata subtus prominente, sicco papyracea, c. 15—19 cm longa, 1—1.3 cm lata; vaginalium patentia, antice rumpentes et membranaceo-marginatae, c. 2.5—2.8 cm longae. *Inflorescentiae* axillares, elongatae, folia superantes, densius multiflorae, secundae(?), pedunculo c. 18 cm longo, nonnullis vaginalium tubulosis acuminatis acutis superne minoribus et magis approximatis in bracteas vergentibus ad c. 1.3 cm longis donato, rachide 16 cm superante. *Bracteae* rhombeae, acutae, concavae, c. 0.26 cm longae, 0.14 cm latae. *Flores* parvi. *Sepalum dorsale* ovatum, obtusum, basi latum, 1nervium, c. 0.14 cm longum, bene 0.1 cm latum. *Sepala*

*lateralia* oblique ovata, obtusiuscula, concava, 1nervia, fere 0.15 cm, margine antico 0.18 cm longa, 0.13 cm lata. *Petala* ovato-rhombea, obtusa, concava, 1nervia, c. 0.125 cm longa, 0.1 cm lata. *Labellum* ambitu late rhombeum, ex ungue brevi lato obverse aequilateraliter trapeziformi in laminam latam leviter trilobulatum dilatatum, in ungue glandulis 2 suborbicularibus instructum, lobulis subsemiorbicularibus sinibus leviter obtusangulis separatis, 3nervium, c. 0.15 cm longum, medio 0.14—0.15 cm latum, ungue c. 0.04 cm longo, 0.08 cm lato, lobulo intermedio 0.04 cm longo, 0.08 cm lato. *Gynostemium* breve, clinandrio concavo. *Anthera* cucullata, reniformis, obtusissima, c. 0.06 cm lata. *Stigma* transversum, semilunatum. *Ovarium* crasse obovoideo-conicum, fere 0.2 cm longum, pedicello tenui, 0.2 cm longo.

Boeroe: Msoema Lawan, north of Mefa, 1100 m, dry limestone slope, epiphytical (L. J. TOXOPEUS n. 558, 3 November 1921; "flowers white").

Near *Ph. densiflora* LNDL., *Ph. moluccana* J. J. S., *Ph. valida* SCHLTR., but differing in the more or less three-lobed lip with broadly rounded lobes. Description from herbarium.

***Phreatia Stresemannii* J. J. S. n. sp.**

Pusilla. *Caulis* c. 2—2.5 cm longus, sensim folia dimittens, inferne foliorum vaginis parvis persistentibus tectum, basi radicans. *Folia* c. 4 simul adsunt, articulata, linearia, inaequaliter obtuse bilobula cum apiculo crasso obtuso interposito, basi angustata conduplicataque, nervis praesertim costa media dorso in sicco prominentibus, sicco tenuiter coriacea, c. 3.6—6.2 cm longa, 0.425—0.65 cm lata; vaginae laxae adpressae, sese amplectentes, conduplicatae, apice quam basis folii latiores et utrinque dentem parvum triangulum gerentes, sicco margine membranaceo undulatae, ad c. 1.7 cm longae. *Inflorescentiae* axillares, folia superantes, densius multiflorae, pedunculo c. 5—5.75 cm longo, vaginulis c. 4 adpressis tubulosis acuminatis ad c. 0.9 cm longis in bracteas vergentibus donato, rachide sicco angulata, c. 4.5—6 cm longa. *Bracteae* flores fere aequantes, ovarium amplectentes, concavae, late quinquangulares, breviter acuminatae, acutae, apiculatae. *Flores* parvi, quaquaversi, patentes. *Sepalum dorsale* abbreviato-ovatum, obtusum, concavum, fere 0.1 cm longum, bene 0.1 cm latum. *Sepala lateral*ia oblique ovata, obtusa, concava, 1nervia, c. 0.125 cm longa et lata. *Petala* parva, ovata, obtusa, 1nervia, c. 0.07 cm longa, 0.05 cm lata. *Labellum* cum pede gynostemii angulum faciens, subsigmoideum, concavum, unguiculatum, 3nervium, ex ungue quadrato valde concavo abrupte in laminam subseptemangulato-semiorbiculari obtusam glabram dilatatum, totum c. 0.13 cm longum, ungue 0.05 cm longo et lato, lamina cum ungue angulos obtusos faciente, bene 0.05 cm longa, fere 0.1 cm lata. *Gynostemium* brevissimum, clinandrio excavato, suborbiculari, pede brevissimo cum ovario angulum acutum faciente. *Anthera* transverse reniformis, obtusissima. *Stigma* transversum, anguste fissuriforme. *Ovarium* sessile, obconicum, bene 0.1 cm longum.

Boeroe: In the north-western part, Goenoeng Toga, 1900 m (E. STRESE-MANN n. 400, February 1912; "flowers yellowish white").

Among the small species of the section *Euphreatia* with linear leaves this is characterized by the inflorescences surpassing the leaves, the very broad bracts and the form of the lip. According to the notes of the collector the flowers are not pure white.

Description from herbarium.

**Phreatia canaliculata** J. J. S. n. sp.

Pusilla. *Caulis* brevis, interdum basi ramosus, c. 2.5 cm longus, sensim folia dimittens, basi radicans. *Folia* c. 4—5 simul adsunt. articulata, linearia, apice breviter subinaequaliter obtuse bilobula, carnosae, canaliculatae, c. 4.5—6 cm longa, macerata explanataque c. 0.4 cm lata; vaginae internodia superantes, imbricantes, apice canaliculato excepto tubulosae, antice rumpentes membranaceo-marginatae et undulatae, ad c. 0.9 cm longae. *Inflorescentiae* axillares, dense multiflorae, foliis multo breviores, pedunculo c. 0.7—1 cm longo, nonnullis vaginulis tubulosis donato, rachide curvata, costata, glabra, c. 1.75 cm longa. *Bracteae* persistentes, triangulae, anguste obtusae, breviter conico-apiculatae. concavae, 1nerviae, c. 0.18 cm longae, 0.1 cm latae. *Flores* parvi, quaquaversi, apici costae longitudinalis sulcis limitatae inserti, erecto-patentes. *Sepalum dorsale* porrectum, apice recurvulum, ovatum, obtusum, 1nervium, vix 0.1 cm longum, 0.07 cm latum. *Sepala lateralialia* divergentia, late oblique ovato-triangula, obtusa, 1nervia, fere 0.1 cm longa, basi 0.1 cm lata. *Petala* oblique elliptica, margine antico basi leviter contracta, subfalcatula, obtusa, 1nervia, fere 0.1 cm longa, bene 0.05 cm lata. *Labellum* porrectum, cum gynostemio angulum acutum faciens, vix sigmoideum, leviter concavum, late spathulatum, ut videtur glabrum, 3nervium ex ungue transverse quadrangulo fere 0.05 cm lato in laminam semiorbiculari cum ungue angulos obtusos facientem rotundatam, apice in lobulum minutum obtusum incurvulum productam c. 0.07 cm longam 0.08 cm latam cuneato-productum, totum bene 0.1 cm longum. *Gynostemium* brevissimum, infra stigma convexum, c. 0.06 cm longum, clinandrio margine angusto erecto concavo, pede abbreviato. *Anthera* cucullata, breviter subcordata, apice obtuse producta, lobulis basilaribus sinu angusto sejunctis late oblique subretusis, connectivo gibboso incrassato, c. 0.03 cm lata. *Rostellum* porrectum, brevissimum, bidentatum. *Stigma* conspicuum, transversum, margine inferiore vix recurvulum. *Ovarium* (fecundatum) obconicum, vix 0.1 cm longum; pedicellus 0.03 cm longus.

Boeroe: Ehoë, 1000 m, epiphytical (L. J. TOXOPEUS n. 343, coll. SAPRIN 28 September 1921; "flowers light green").

As to the vegetative parts this resembles the preceding species but the leaves are narrower and thicker, the inflorescences much shorter, bracts and floral segments different.

Description from herbarium.

## ACRIOPSIS REINW.

*Acriopsis javanica* REINW. ex. BL. Cat. gew. Buit. (1823), 97; Bijdr. (1825), 577; etc.

Boeroe: (L. J. TOXOPEUS n. 88).

## ADENONCOS BL.

*Adenoncos buruensis* J. J. S. n. sp.

Pusilla. *Caulis* patens, incurvus, simplex, c. 1.25—2 cm longus, basi radicans, internodiis c. 0.25—0.3 cm longis, radicibus mediocribus flexuosis. *Folia* linearia, recurvula, apice inaequaliter obtusa vel breviter inaequaliter rotundato-bilobula cum apiculo triangulo interposito, supra obtusangule canaliculata, subtus carinata, carnosa, macerata c. 2.5 cm longa, 0.5—0.6 cm lata, vaginae tubulosae, apice truncatae, transverse verrucoso-rugosae. *Inflorescentiae* axillares, breves, 1florae, pedunculo c. 0.34 cm longo, vaginulis c. 3 brevissimus tubulosus a latere compressis obtusis superioribus accrescentibus donato. *Bractea* vaginulis subsimilis, c. 0.2 cm longa. *Flos* carnosulus, c. 0.7 cm latus. *Sepalum dorsale* oblongo-triangulum, acute conico-apiculatum, leviter concavum, dorso leviter obtusangule incrassatum, c. 0.38 cm longum, 0.2 cm latum. *Sepala lateralialia* oblique oblonga, acuminata, acuta, apiculata, apice recurvula, concava, dorso acute carinata, c. 0.425 cm longa, 0.2 cm lata. *Petala* oblique oblonga, vix acuminata, acuta, concava, costa media dorso prominente, c. 0.27 cm longa, basi 0.13 cm, superne 0.12 cm lata. *Labellum* simplex, abbreviato-obovato-orbiculare, apice obtusissimum, apiculo carnoso obtuso in dorso infra marginem apicalem, incrassatione longitudinali oblonga intus in dimidio inferiore, concavum, subtus convexum, c. 0.4 cm longum, 0.46 cm latum. *Gynostemium*. . . . *Anthera* cucullata, a dorso compressa, subquingulari-semiovalis, apice truncata, c. 0.13 cm lata.

Boeroe: Fat'Koton (Fakal), 1475 m, epiphytical (L. J. TOXOPEUS n. Bg. 1 March 1922; "flowers greenish yellow with a small red mark on the lip").

A near ally of *A. virens* BL. but with broader blunt leaves, one-flowered inflorescences and larger flowers.

The material was not very good and the flowers fertilized so that I could not give a description of the column and ovary.

Description from herbarium.

## VANDA R. BR.

*Vanda saxatilis* J. J. S. in Trop. Nat. XIV (1925), 196; in Bull. Jard. Bot. 3esér., VIII (1926), 66. — *V. crassiloba* T. et B. (non J. J. S.) in Cat. Hort. Bot. (1866) 48; nom. nud. — *V. sp.* J. J. S. in MERR. Interpret. RUMPH. Herb. Amb. (1917), 178. — *Angraecum saxatile* RUMPH. Herb. Amb. VI, 107, t. 49, fig. 1.

**Boeroe**: South coast, Oki, on rocks (J. E. TEYSMANN, February 1860).  
Leksoela, on a tree on the beach (L. J. TOXOPEUS n. 2, 9 February 1921).  
Same locality, on a rock, 10 m (L. J. TOXOPEUS n. 16, 17 February 1921).  
Also Ambon and Seran.

VANDOPSIS PFITZ.

**Vandopsis lissochiloides** PFITZ. in ENGL. u. PRANTL. Nat. Pflanzenfam. II, 6 (1889), 210, fig. 229; etc.

**Boeroe**: Leksoela, 10 m, on rock of gravel conglomerate (L. J. TOXOPEUS nrs 3 and 17, coll. SAPRIN February 1921).  
Also Ambon, Selebes, Philippines.

RENANTHERA LOUR.

**Renanthera moluccana** BL. Rumphia IV (1848), 54, t. 193, fig. 2; t. 197 E; etc.

**Boeroe**: Nal'Besi, 800 m (L. J. TOXOPEUS n. 240, coll. SAPRIN 25 June 1921).

Also Ambon.

PENNILABIUM J. J. S.

**Pennilabium** n. sp.

**Boeroe**: Wa Katin, 600 m (L. J. TOXOPEUS n. 71a, coll. SAPRIN 26 March 1921).

A few specimens of a species of this small genus were mixed together with n. 71, *Sarcochilus Zollingeri* RCHB. F. The flowers, however, were not in a state good enough for describing.

SACCOLABIUM BL.

**Saccolabium ?Rumphii** J. J. S. in Bull. Jard. Bot. Buit. 2e sér. XIII (1914), 44.

**Boeroe**: South-eastern coast, on a tree on the beach (L. J. TOXOPEUS n. 538, 22 September 1921; in fruit).

Also Ambon.

Though only fruits were on the specimens I have little doubt as to the correctness of the determination, living specimens of the plant having been collected formerly on Boeroe by Dr. K. GJELLERUP.

THRIXSPERMUM LOUR.

**Thrixspermum ?flaccidum** J. J. S. in Bull. Jard. Bot. Buit. 3e sér. II (1920) 112.

**Boeroe**: Leksoela, on a tree on the beach (L. J. TOXOPEUS n. 4, February 1921, without flowers; "flowers creamy white, lip blotched orange

yellow"). Near Leksoela, 800 m, epiphytical (L. J. TOXOPEUS n. 643, coll. SAPRIN 22 October 1921).

The specimen collected under n. 4 was lacking flowers. Those of n. 643 showed slight differences with the type. When more material is available it will perhaps prove necessary to establish a new species.

#### SARCOCHILUS R. BR.

*Sarcochilus Zollingeri* RCHB. F. in WALP. Ann. VI (1861), 500; etc. Boeroe: Wa Katin, 600 m, epiphytical (L. J. TOXOPEUS n. 71, coll. SAPRIN, 26 March 1921; "flowers yellow and white").

Also Ambon and Java.

*Sarcochilus Treubii* J. J. S. in Bull. Jard. Bot. Buit. 2e sér. III (1912), 14. Boeroe: Without locality (L. J. TOXOPEUS, without number).

Also Aroe Islands.

#### PHALAEOPSIS BL.

*Phalaenopsis amabilis* BL. Bijdr. (1825), 294; Tab. fig. XLIV; etc. var. *moluccana* SCHLTR. in FEDDE Rep. X (1911), 193.

Boeroe: Leksoela, 50 m (L. J. TOXOPEUS n. 33, 4 March 1921; n. 622, October 1921).

#### SARCANTHUS LNDL.

*Sarcanthus subulatus* RCHB. F. in Bonpl. V (1857), 41; etc.

Boeroe: Wa Katin, 600 m (L. J. TOXOPEUS n. 168, coll. SAPRIN 19 April 1921).

*Sarcanthus buruensis* J. J. S. n. sp.

*Caulis* brevis, incurvus, c. 5 cm longus, internodiis brevibus, radicibus longissimus tenuiusculis. *Folia* loriformia, apice lato oblique rotundato-biloba, basi conduplicata, costa media supra sulcata subtus prominente, sicco rigide coriacea, c. 10—14 cm longa, 1.35—1.5 cm lata; vaginae breves, basi tubulosae. *Inflorescentiae* axillares, 2 superimpositae, paniculatae, laxae multiflorae, folia multo superantes, pedunculo c. 11—14.5 cm longo, vaginulis c. 5 brevibus tubulosis donato, panicula c. 9—15.5 cm longa, racemo terminali c. 7—9 cm longo, ramulis 2—4, 6—7 cm longis, rachide angulata minute papillosa. *Bractaeae* parvae, persistentes, triangulae, concavae, carnosulae, dorso 0.06 cm longae. *Flores* parvi, carnosuli, c. 0.43 cm lati, 0.6 cm longi. *Sepalum dorsale* erectum, oblongum, apicem versus paululum dilatatum, obtusum, leviter concavum, 3nervium, c. 0.35 cm longum, 0.17 cm latum. *Sepala lateralia* oblique oblonga, basi leviter contracta, obtusa, concava, 3nervia, bene 0.3 cm longa, 0.15 cm lata. *Petala* oblique lanceolata, falcata, obtusa, vix apiculata, leviter concava, 2nervia, c. 0.3 cm longa, fere 0.1 cm lata. *Labellum* basi pedi gynostemii breviter adnatum, calcaratum

3lobum, gynostemium paulo superans, concavum, subtus convexum ab apice usque ad apicem ovarii c. 0.3 cm longum, ab apice lobi intermedii usque ad apicem calcaris bene 0.4 cm metiens; lobi laterales parvi, porrecti, gynostemio paralleli brevioresque, angusti, margine superiore recti, apice trianguli, subacuti, lobus intermedius multo major, porrectus valde dilatatus, 3lobulatus, abbreviato-hastatus, multo latior quam longus, leviter concavus, subtus convexum, medio carnosissimo-incrassatus cum canalicula longitudinali transverse rugulosa, c. 0.14 cm longus, 0.26 cm latus, lobulis lateralibus divaricatis, leviter incurvulis, oblique quadrangulis rotundato-truncatis, lobulo intermedio late breviter obtusangule triangulo; calcar deorsum spectans, ovario subparallelum, cum pede gynostemii angulum obtusum faciens, medio vix incurvulum, subcylindricum, obtusum, c. 0.25 cm longum, callo a dorso compresso supra viso quadrangulo sulco longitudinali bilobulo utroque latere concavo in pariete postico ad basin, esseptatum. *Gynostemium* breve, crassum, dorso convexum, apice truncatum, absque anthera c. 0.175 cm longum, clinandrio transverse ovali, coneavo cum costula longitudinali, pede brevissimo, tota longitudine labello adnato, infra stigma convexo. *Rostellum* parvum, malleiforme. *Stigma* concavum, quadrangulum, superne paulo angustatum, margine inferiore leviter rotundato-excisum. *Ovarium* satis crassum, teres, 6sulcatum, fere 0.4 cm longum. *Capsula* brevissime pedicellata, reliquiis floris coronata, oblonga, trigona, angulis duplicatis lateribus 0.425 cm lata, rima 1 longitudinali dehiscens.

Boeroe: Wa Katin, 610 m, epiphytical (L. J. TOXOPEUS n. 156, 18 April 1921; "flowers light greenish yellow with relatively large brown dots, lip and column light yellow, capsule blackish green").

The nearest ally of this species is *S. sumbawensis* J. J. S. It is, however, a smaller plant with short internodes, a less branched inflorescence, broader floral segments, shorter side lobes, the midlobe provided with quadrate basal lobules, a quite different callus in the mouth of the spur, etc.

Description from a dried specimen in fruit and a single flower preserved in alcohol.

#### POMATOCALPA BREDA

*Pomatocalpa marsupiale* J. J. S. in Nat. Tijdschr. Ned. Ind. LXXII (1912), 35; etc.

Boeroe: Between Leksoela and En'botit, c. 10 m, on a limestone rock at the beach (L. J. TOXOPEUS n. 19, 25 February 1921).

#### ROBIQUETIA GAUD.

*Robiquetia viridirosea* J. J. S. in Bull. Jard. Bot. Buit. 3e sér. II (1920), 121.

Boeroe: Wa Katin, 700 m, epiphytical (L. J. TOXOPEUS n. 75, coll. SAPRIN 26 March 1921). Ehoe (Leksoela), 1000 m, epiphytical (L. J. TOXOPEUS n. 627, coll. SAPRIN 17 October 1921).

Also Seran.



## TRICHOGLOTTIS BL.

*Trichoglottis geminata* J.J. S. Orch. Amb. (1905), 106; etc.

Boeroe: Ehoë, 1000 m, epiphytical (L. J. TOXOPEUS n. 365, coll. SAPRIN 29 September 1921).

Also Ambon, Saparoea, Soela Islands, Selebes.

## TAENIOPHYLLUM BL.

*Taeniophyllum wakatense* J.J. S. n. sp.

*Caulis* abbreviatus, squamis mox in fibras solutis tectus, radicibus numerosis, adpressis, elongatis, valde depressis, ad c. 46 cm longis, sicco 0.1—0.225 cm latis. *Inflorescentiae* dense pluri-multiflorae, pedunculo capilliformi, c. 2.5—5 cm longo, basi nonnullis vaginulis minutis tubulosis infra medium vaginula simili donato, rachide incrassata, lateraliter compressa, flexuosa, ad c. 0.7 cm longa, cum bracteis 0.14 cm lata (sicco), internodiis c. 0.05 cm longis. *Bracteae* alternatim bifariae, persistentes, patentes, late triangulae, concavae, nervis 3 prominentibus. *Flores* singuli expansi, ad c. 19, c. 0.33 cm longi. *Sepalum dorsale* spathulato-oblongum, obtusum, basi breviter angustatum, valde concavum, 3nervium, c. 0.25 cm longum, 0.07 cm latum. *Sepala lateralialia* oblique spathulato-lanceolata, acuta, basi paulo oblique dilatata, marginibus valde incurvis canaliculata, 3nervia, c. 0.28 cm longa, 0.075 cm lata. *Petala* oblique linearia ad lineari-oblonga, obtusa, marginibus incurvis, 3nervia, c. 0.2—0.24 cm longa, 0.06—0.5 cm lata. *Labellum* porrectum, calcaratum, 3lobum, concavum, usque ad basin fere 0.25 cm, cum calcaribus 0.275 cm longum, explanatum totum c. 0.28 cm longum, 0.175 cm latum; lobi laterales erecti, incurvi, subsemiorbiculares, antice vix producti, rotundati, concavi, basi 0.15 cm lati; lobus intermedius porrectus, ambitu quadrangulus cum marginibus leviter rotundatis, conduplicatus, apice medio recurvo bilobulus, dorso superne carinatus, c. 0.1 cm longus, 0.075 cm latus; calcar cum ovario et lamina angulos acutos faciens, brevis, oblique subovoideoglobosum, obtusum, c. 0.075 cm longum. *Gynostemium* brevissimum, c. 0.05 cm longum. *Rostellum* in lacinias 2 porrectas parallelas verticales triangulas acutas alte partitum. *Ovarium* obconicum, fere 0.1 cm longum; pedicellus tenuior, c. 0.1 cm longus.

Boeroe: Wa Katin, 700 m, epiphytical (L. J. TOXOPEUS n. 72, coll. SAPRIN 26 March 1921; "flowers white and light yellow").

A species of the section *Loboglossum*, nearly allied to *T. amboinense* J.J. S. but at once distinguished by the very short spur.

Description from herbarium.

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